The PHOTOFACT Servicer

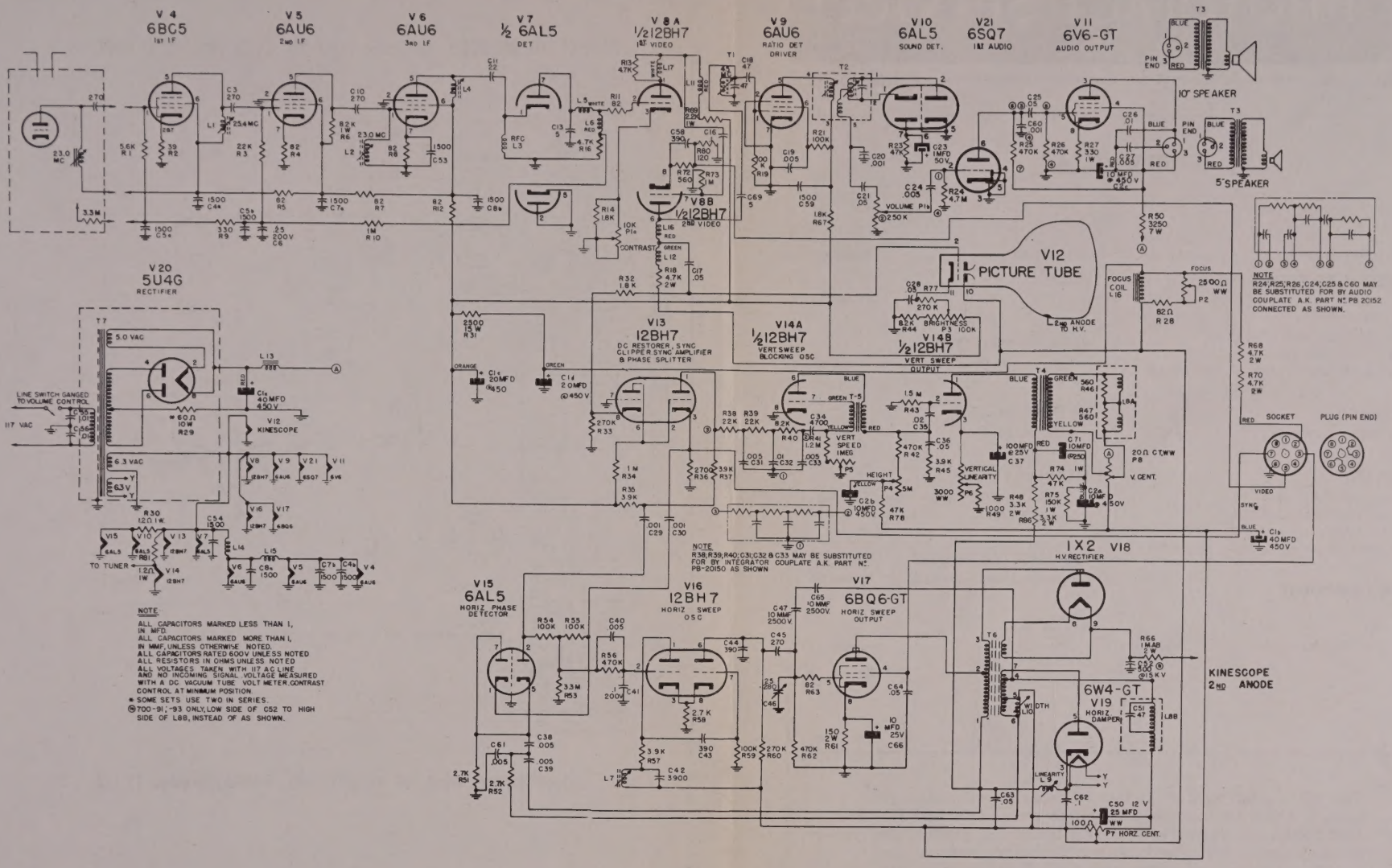
SET 404 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ JUNE 15, 1958

CONTENTS SET 404

TRADE NAME AND MODEL	SET AND FOLDER NO.
TELEVISION RECEIVERS	
ADMIRAL	
HF21F32, 33, 34, HFA21F32, 33, 34, HFR21F42, 43, 44 (Ch. 17AL1, 17D1, 17L1, B, 4S2A, B, 8F1, 8H1A)	404-1
CORONADO	
TV2-9485A, TV2-9486A	404-2
MAGNAVOX	
Chassis U26-01AA, -02AA, -03AA, -04AA, V26-01AA, -02AA, -03AA, -04AA, AMP-142CC, AMP-169AA, CR-745BB (26 Series)	404-3
OTHER EQUIPMENT	
AIRLINE	
GAA-1003A, GAA-1009A	404-4
BUICK	
981902	404-5
GRUNDIG MAJESTIC	
"Concert Boy" 57	404-6
HARMAN-KARDON	
A-120 (Melody II)	404-7
MAGNAVOX	
Chassis AMP-169AA, AMP-170AA	404-8
Chassis CR-745AA, BB, CR-746AA	404-9
SYLVANIA Tape Recorder	
4901 (Ch. 1-400-1, -2, 1-628-1)	404-10
ULTRATONE	
1210, 1211	404-11

The service information in this Servicer provides data on models which we have been unable to present in PHOTOFACT Folders. The receivers are not in current production; a requirement for PHOTOFACT coverage, and we are therefore presenting schematics and supplementary data that will be of assistance when servicing these models.

FIRESTONE MODELS 13-G-49, 13-G-50 CODE No. 105-0-70090



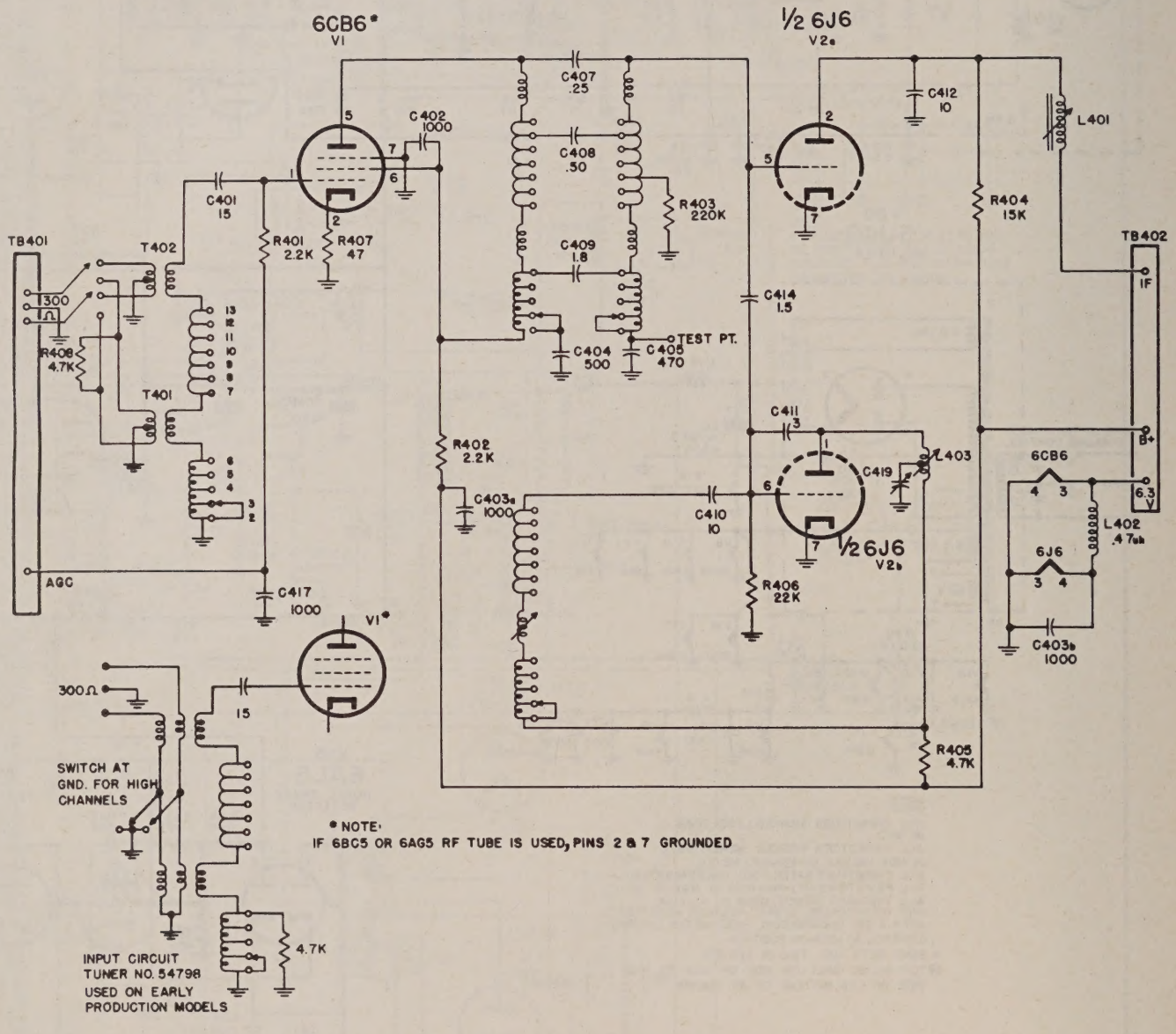
NOTE:
ALL CAPACITORS MARKED LESS THAN 1, IN MFD.
ALL CAPACITORS MARKED MORE THAN 1, IN MMF, UNLESS OTHERWISE NOTED.
ALL CAPACITORS RATED 600V UNLESS NOTED
ALL RESISTORS IN OHMS UNLESS NOTED
ALL VOLTAGES TAKEN WITH 117 A.C. LINE AND NO INCOMING SIGNAL. VOLTAGE MEASURED WITH A D.C. VACUUM TUBE VOLT METER. CONTRAST CONTROL AT MINIMUM POSITION.
* SOME SETS USE TWO IN SERIES.
Ⓜ 700-91, -93 ONLY, LOW SIDE OF C52 TO HIGH SIDE OF L88, INSTEAD OF AS SHOWN.

NOTE
R24, R25, R26, C24, C25 & C60 MAY BE SUBSTITUTED FOR BY AUDIO COUPLATE A.K. PART Nº PB 20152 CONNECTED AS SHOWN.

NOTE
R38, R39, R40, C31, C32 & C33 MAY BE SUBSTITUTED FOR BY INTEGRATOR COUPLATE A.K. PART Nº PB-20150 AS SHOWN

SCHEMATIC DIAGRAM COURTESY FIRESTONE TIRE AND RUBBER CO.

FIRESTONE MODELS 13-G-49, 13-G-50 CODE No. 105-0-70090



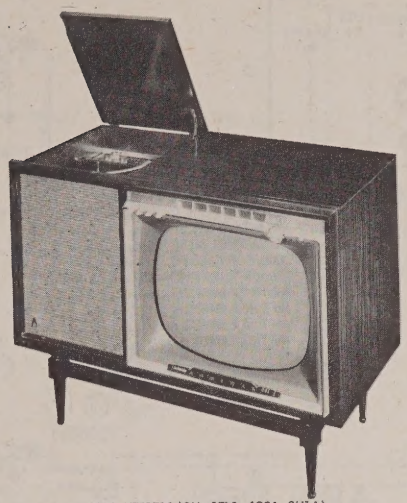
SCHEMATIC FOR RF TUNER NO. 54946, Model TT3-X

ADMIRAL CHASSIS 17L1, B, 17AL1, 17D1, 4S2B, 8F1, 8H1A

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove the rear cover by depressing 8 spring clips.
2. Remove 2 plugs from amplifier.
3. Remove 2 wood screws holding the AC interlock.
4. Remove 4 metal screws from the 2 rear chassis braces.
5. Remove 1 chassis bolt from the bottom.
6. Remove the chassis from the front of the cabinet.
7. Remove amplifier leads and 4 chassis bolts from the bottom. Remove the amplifier chassis.
8. Remove 4 wood screws holding rear cover.
9. Remove the knobs and leads.
10. Remove 4 chassis retaining nuts and lower chassis. NOTE: Dial pointer unplugs.



MODEL HF21F32 (CH. 17L1, 4S2A, 8H1A)

TRADE NAME	Admiral	MODELS	CHASSIS
		HFA21F32, HFA21F33, HFA21F34	17AL1
		HFR21F42, HFR21F43, HFR21F44	17D1
		HF21F32, HF21F33, HF21F34	17L1
		HF21F32	17L1B
		(FM-AM Tuner)	4S2A, B
		(Remote Control)	8F1
		(Amplifier)	8H1A

MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois
TYPE SET	Television Receiver With FM-AM Tuner, Amplifier and Phono
TUBES	TV - Sixteen, FM-AM Tuner - Eight, Amplifier - Four
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING TV-273 Watts 2.59 Amp. @ 117 Volts AC Radio - 86 Watts .8 Amp. @ 117 Volts AC Phono - 86 Watts .8 Amp. @ 117 Volts AC (105 Watts .95 Amp. @ 117 Volts AC With Motor)
TUNING RANGE	TV - Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) FM - 88MC to 109MC, FM IF 10.7MC AM - 535KC to 1620KC, AM IF 455KC

ALL UNITS USE ADMIRAL RECORD CHANGER RC647-2D. FOR SERVICE INFORMATION ON THIS UNIT REFER TO PHOTOFACT SET 398 - FOLDER 7.

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustment of the VHF Oscillator remove snap on escutcheon directly above the Channel Selector. Set the Fine Tuning at the center of its range. The adjustments are accessible, one at a time, as the Channel Selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Pry off the trim at the bottom of the safety glass. Remove 2 screws holding the retaining bracket. Tilt the glass out at the bottom and lower to remove.

SPECIAL ADJUSTMENTS

A. Focus
The focus may be varied in steps by the position of a plug in the Focus Adjustment board.

B. Super Range Finder Adjustment
The Super Range Finder (R7) is adjusted to improve reception in fringe areas and areas where interference is present.
The Super Range Finder control should be turned fully counterclockwise and left there if satisfactory pictures can be obtained in this position.
Where the signal strength is weak, turn the control clockwise until the picture is satisfactory. White flashes and snow can sometimes be minimized by carefully adjusting the Super Range Finder.
Keep this control set as far counterclockwise as far as possible consistent with satisfactory pictures, to prevent overloading of excessive contrast.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The Horizontal Frequency coil is used as the Horizontal Hold control. Adjust the Horizontal Hold until the picture synchronizes horizontally. (For location, see tube placement chart.)

FUSES

One fuse is used for LV power supply protection. (For location, see tube placement chart.)

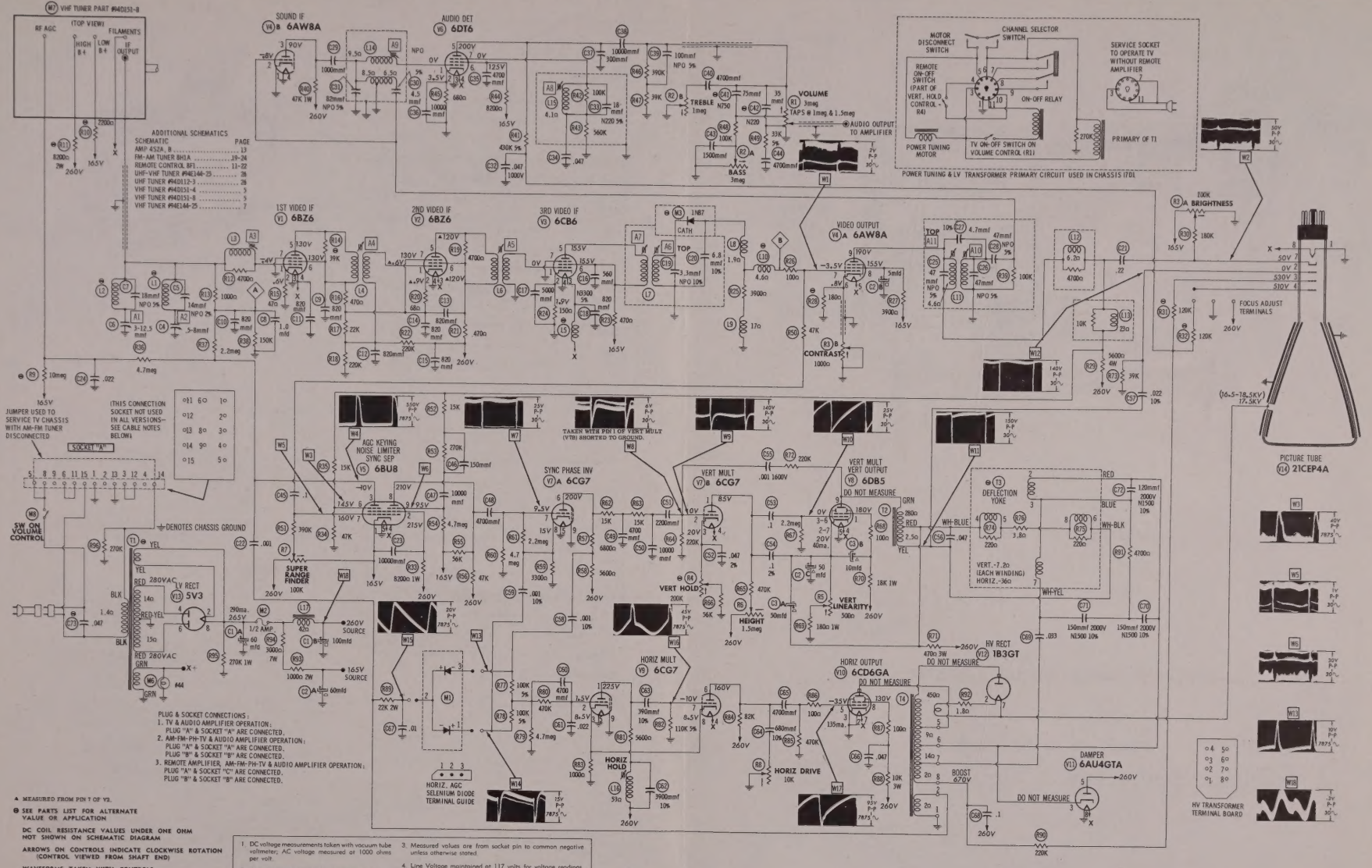
CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

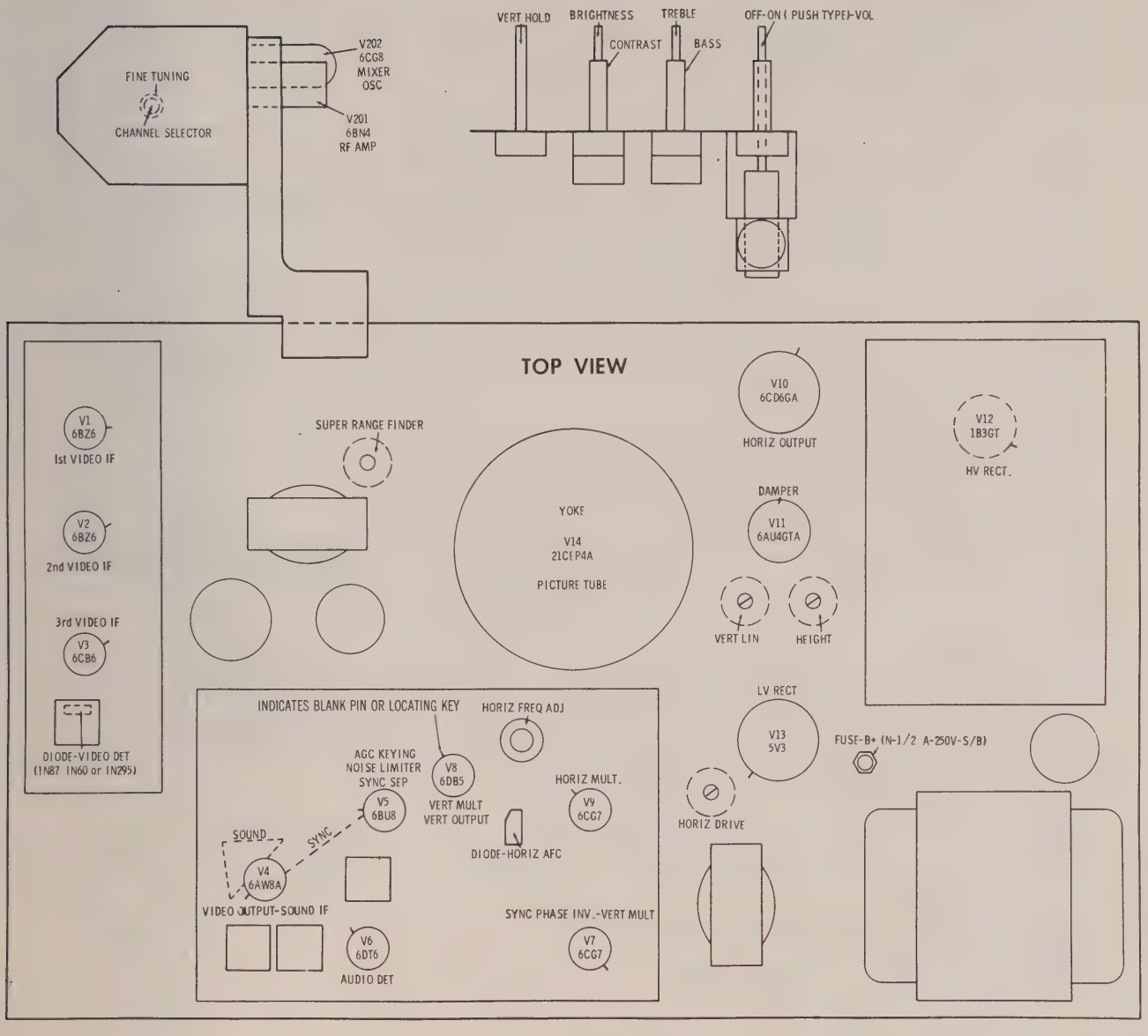
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

ADMIRAL CHASSIS 17L1, B, 17AL1, 17D1, 4S2B, 8F1, 8H1A
SET 404 FOLDER 1


VHF TUNER PART #40151-8
(TOP VIEW)
RF AGC
FILAMENTS
HIGH B+
LOW B+
IF OUTPUT
ADDITIONAL SCHEMATICS
SCHEMATIC PAGE
AMP 452A, B 13
FM-AM TUNER BH1A 19-24
REMOTE CONTROL 8F1 11-22
UHF-VHF TUNER #40144-25 26
UHF TUNER #40112-3 26
VHF TUNER #40151-4 5
VHF TUNER #40151-8 5
VHF TUNER #40144-25 7
SOUND IF V4 B 6AW8A
AUDIO DET V6 6DT6
VOLUME
TAPS @ 1meg & 1.5meg
TREBLE 1meg
BASS 3meg
AUDIO OUTPUT TO AMPLIFIER
MOTOR DISCONNECT SWITCH
CHANNEL SELECTOR SWITCH
REMOTE ON-OFF SWITCH (PART OF VERT. HOLD CONTROL - R4)
ON-OFF RELAY
SERVICE SOCKET TO OPERATE TV WITHOUT REMOTE AMPLIFIER
POWER TUNING MOTOR
TV ON-OFF SWITCH ON VOLUME CONTROL (R1)
PRIMARY OF T1
POWER TUNING & LV TRANSFORMER PRIMARY CIRCUIT USED IN CHASSIS 17D1
1ST VIDEO IF V1 6BZ6
2ND VIDEO IF V2 6BZ6
3RD VIDEO IF V3 6CB6
VIDEO OUTPUT V4 A 6AW8A
BRIGHTNESS
CONTRAST
FOCUS ADJUST TERMINALS
PICTURE TUBE V14 21CEP4A
(16.5-18.5KV) 17.5KV
JUMPER USED TO SERVICE TV CHASSIS WITH AM-FM TUNER DISCONNECTED
(THIS CONNECTION SOCKET NOT USED IN ALL VERSIONS—SEE CABLE NOTES BELOW)
SOCKET "A"
SW ON VOLUME CONTROL
DENOTES CHASSIS GROUND
AGC KEYING NOISE LIMITER SYNC SEP V5 6BU8
SUPER RANGE FINDER 100K
SYNC PHASE INV V7 A 6CG7
VERT MULT V7 B 6CG7
VERT MULT VERT OUTPUT V8 6DB5
DO NOT MEASURE
DEFLECTION YOKE
VERT. -7.2Ω (EACH WINDING) HORIZ. -3Ω
VERT HOLD 200K
HEIGHT 1.5meg
VERT LINEARITY 500Ω
LV RECT 5V3
HV RECT 1B3GT
HORIZ MULT V9 6CG7
HORIZ OUTPUT V10 6CD6GA
HORIZ DRIVE 10K
HORIZ HOLD
HORIZ. AGC SELENIUM DIODE TERMINAL GUIDE
DAMPER 6AU4GTA
BOOST 670V
HV TRANSFORMER TERMINAL BOARD
TAKEN WITH PIN 1 OF VERT MULT (V7B) SHORTED TO GROUND.
PLUG & SOCKET CONNECTIONS:
1. TV & AUDIO AMPLIFIER OPERATION: PLUG "A" & SOCKET "A" ARE CONNECTED.
2. AM-FM-PH-TV & AUDIO AMPLIFIER OPERATION: PLUG "A" & SOCKET "A" ARE CONNECTED. PLUG "B" & SOCKET "B" ARE CONNECTED.
3. REMOTE AMPLIFIER, AM-FM-PH-TV & AUDIO AMPLIFIER OPERATION: PLUG "A" & SOCKET "C" ARE CONNECTED. PLUG "B" & SOCKET "B" ARE CONNECTED.
A MEASURED FROM PIN 7 OF V2.
B SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958
ADMIRAL CHASSIS 17L1, B, 17AL1, 17D1, 4S2B, 8F1, 8H1A

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (M2), V13

SWEEP FAILURE
No raster, has sound Rectifier (M1), V9, V10, V11, V12, V14
No vertical deflection V7, V8
Poor vert. linearity or foldover V7, V8
Poor horiz. linearity or foldover V9, V10, V11
Narrow picture V9, V10, V11, V13
Vert. off freq. V7, V8
Horiz. off freq. V9

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (M3), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V4, V6, V23, V24, V25, V26
Overloaded picture V5

SYNC FAILURE
No vert. sync V5, V7
No horiz. sync V5, V7, M1
No vert. or horiz. sync V5, V7

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The HighVoltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a variable bias supply to point Ⓐ. Positive to chassis. Adjust bias to obtain response curve showing no signs of overloading.
Use only enough generator output to provide a usable indication on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer osc. tube (V202). Low side to chassis.	41.25MC (Unmod)	Any non-interfering channel	DC probe thru 10K to point Ⓑ. Common to chassis. (Across video det. load).	A1	Adjust for MINIMUM deflection.
2.	"	"	47.25MC	"	"	A2	"
3.	"	"	42.3MC	"	"	A3	Adjust for maximum deflection.
4.	"	"	45.3MC	"	"	Mixer Plate Coil	"
5.	"	"	"	"	"	A4	"
6.	"	"	41.5MC	"	"	A5	"
7.	"	"	42.0MC	"	"	A6	"
8.	"	"	43.5MC	"	"	A7	"

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	44.0MC (10MC Swp)	42.25MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis. (Across video det. load).		Check for response similar to Fig. 1. If necessary, retouch A3 thru A7 for desired response.

SOUND IF ALIGNMENT

Turn the set on and tune in the strongest station in the area. Allow 15 minutes for set to warm-up. Set all controls for normal operation.
Using a non-metalic alignment tool, turn A8 very slowly clockwise until a buzz is heard in the sound. Then turn counter clockwise until the loudest and clearest sound is heard. There may be two points at which the sound peaks, (approximately $\frac{1}{8}$ turn apart). The slug should be set at the center of the second peak as the slug is turned clockwise.
Using an attenuator between the antenna and the antenna terminals, reduce the input signal until a considerable amount of hiss is heard in the sound similar to super-regeneration. The signal may also be reduced by disconnecting the antenna lead and placing it in the vicinity of the antenna terminals.
Carefully adjust A9 and A10 for clearest sound and MINIMUM noise..
If the hiss desappears during alignment, further reduce the signal until the hiss returns.

4.5MC TRAP ALIGNMENT

Tune in a strong TV station and adjust the fine tuning until a beat pattern appears in the picture. Observe and adjust the picture A11 for MINIMUM beat pattern.

AM TUNER ALIGNMENT

Set the Volume fully clockwise and the Bass and Treble controls at mid-range.
Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
10.	.01mfd	High side to RF stator lug on tuning gang. Low side to chassis.	455KC (400∿ Mod)	AM	Tuning gang fully open	Across voice coil	A12,A13, A14,A15	Adjust for maximum deflection.
11.	"	"	1620KC	"	"	"	A16	"
12.		Loop	1400KC	"	Tune to 1400KC signal	"	A17	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

CONTINUED PAGE 29

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 6 & 25.

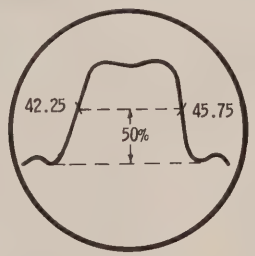
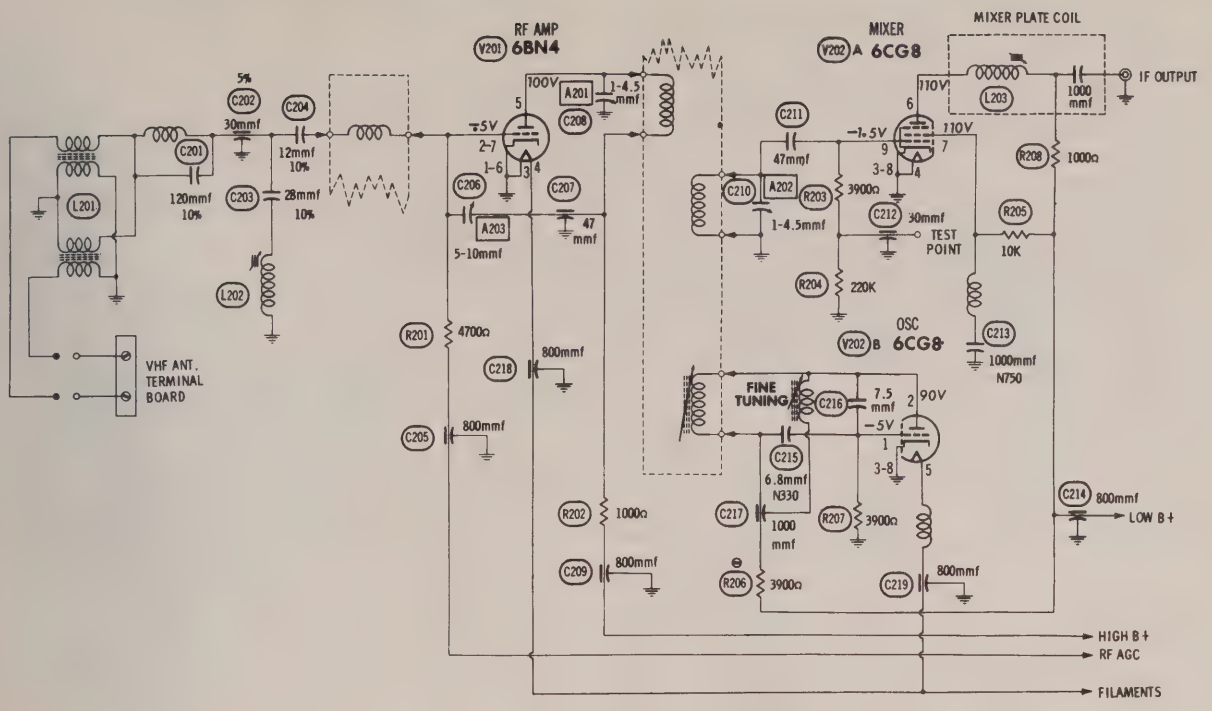
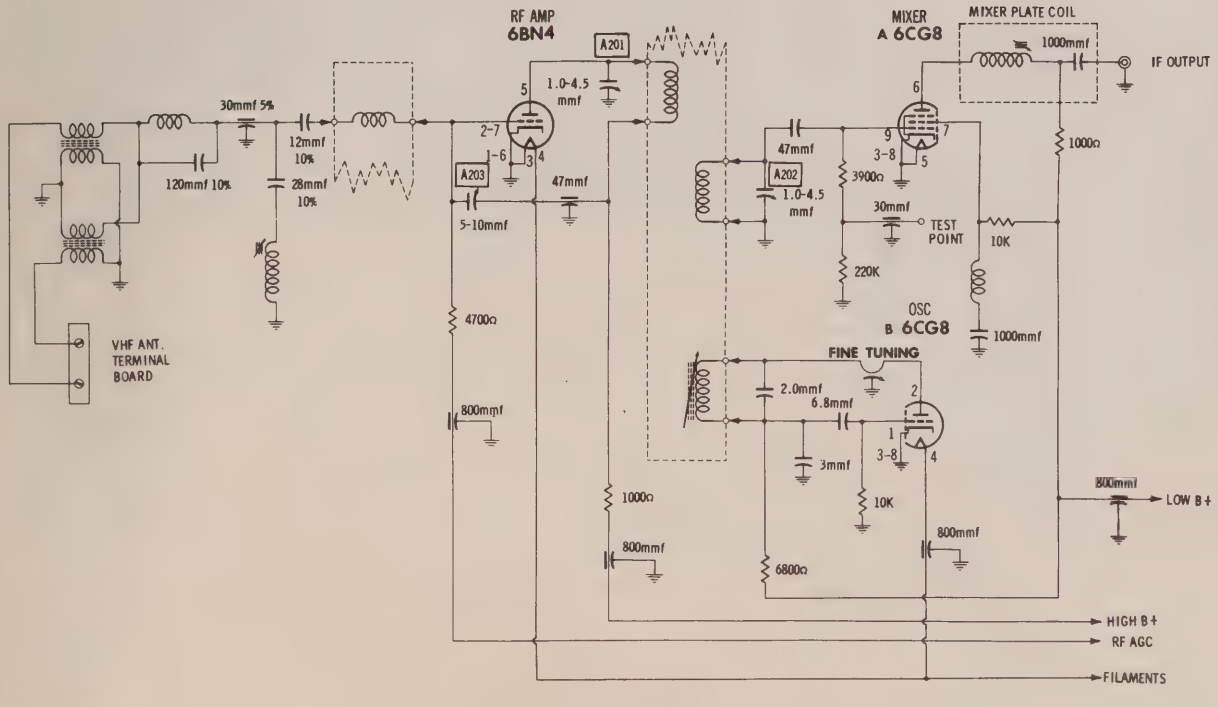


FIG.1



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF TUNER #94D151-8



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF TUNER #94D151-4

TUNER ALIGNMENT INSTRUCTIONS #94D151-4, -8

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.

VHF OSCILLATOR ALIGNMENT

Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point ⊕. Low side to chassis.	A201, A202, A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope.
"	"	213MC	211.25MC 215.75MC	13	"		Check for response similar to Fig. 201. If markers fall below 70% on any channel, make compromise adjustments of A201 and A202, with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
		207MC	205.25MC 209.75MC	12			
		201MC	199.25MC 203.75MC	11			
		195MC	193.25MC 197.75MC	10			
		189MC	187.25MC 191.75MC	9			
		183MC	181.25MC 185.75MC	8			
		177MC	175.25MC 179.75MC	7			
		85MC	83.25MC 87.75MC	6			
		79MC	77.25MC 81.75MC	5			
		69MC	67.25MC 71.75MC	4			
		63MC	61.25MC 65.75MC	3			
		57MC	55.25MC 59.75MC	2			

FIG. 201

TUNER PARTS LIST AND DESCRIPTION #94D151-4, -8

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C201	120			NPO-DI 120	DD-121	L10T12		MS-312	10%
C202	30								5%
C203	28		94D131-81						10%
C204	12		94D131-95						10%
C205	800								
C206	5-10		94D151-83						
C207	47								
C208	1-4.5		94D131-83						
C209	800								
C210	1-4.5		94D131-83						
C211	47		94D131-87						
C212	30		94D131-88						
C213	1000		94D131-89						N750
C214	800								
C215	6.8		94D131-92						N330
C216	7.5								
C217	1000			EF-001	MFT-1000			503C-D1	
C218	800								
C219	800								

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R201	4700Ω			
R202	1000Ω			
R203	3900Ω			
R204	220K			

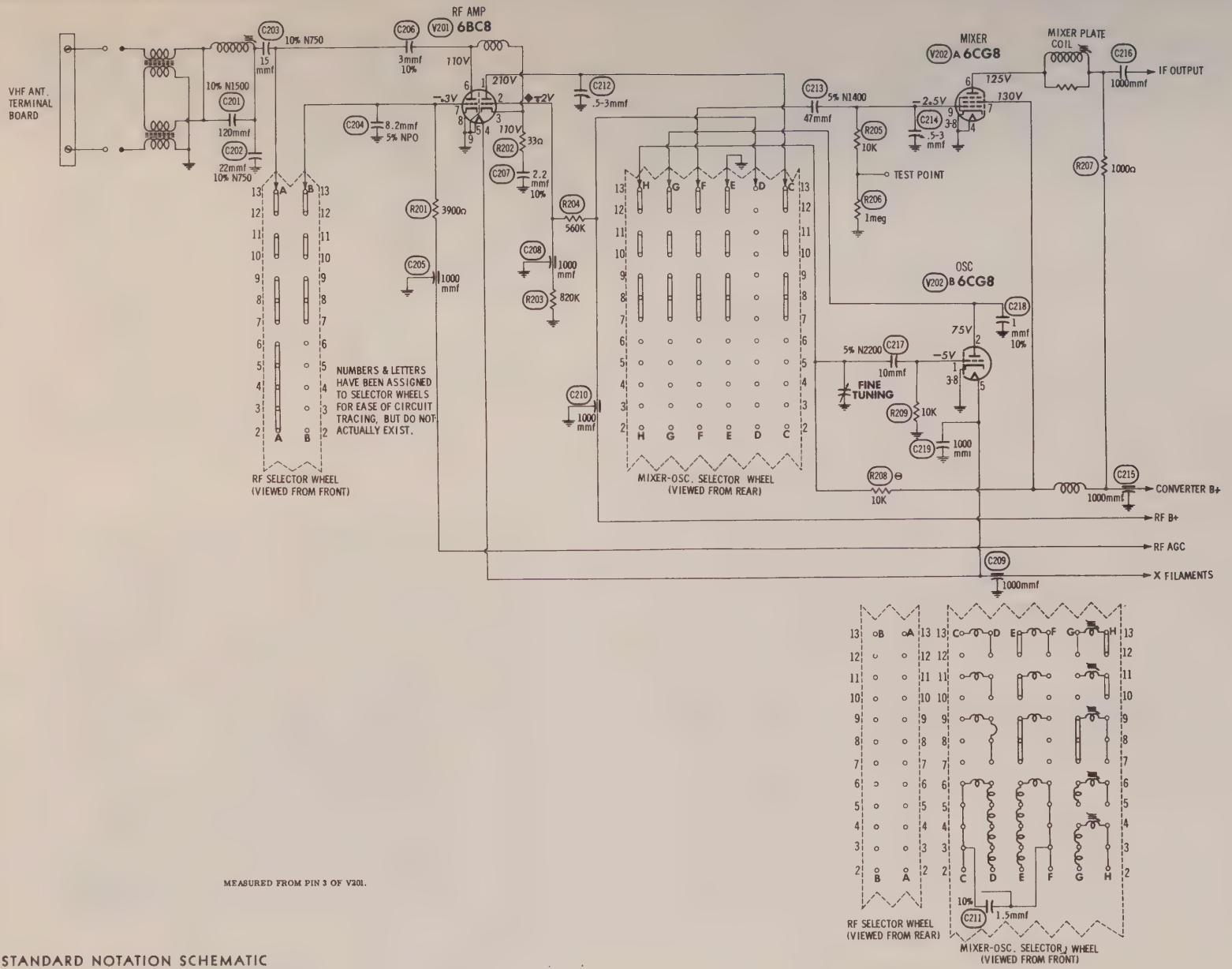
ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R205	10K			
R206	3900Ω			Note 1
R207	3900Ω			
R208	1000Ω			

Note 1. Some versions may use 6800Ω in this application.

COILS (RF-IF)

ITEM No.	USE	ADMIRAL PART No.	NOTES
L201	Ant. Trans.	94D131-68	Complete Assy.
L202	Ant. Trap	94D131-51	

ITEM No.	USE	ADMIRAL PART No.	NOTES
L203	Mixer Plate Coil	94D151-66	



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF TUNER #94E144-25

TUNER PARTS LIST AND DESCRIPTIONS #94E144-25

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BC8	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120		65D10-136							N1500 10%
C202	22		65D10-134	N750-DI 22	TCN-22	C10Q22U	TC7-22		5TCU-Q22	N750 10%
C203	15		65D10-135	N750-DI 15	TCN-15	C10Q15U	TC7-15		5TCU-Q15	N750 10%
C204	8.2		65D10-131	NPO-SI 8.2		C10V82C	TCO-8.2			NPO 5%
C205	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C206	3		65B28-030	NPO-SI 3.0		C10V3C	TCO-3.0			10%
C207	2.2		65D10-27	NPO-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	10%
C208	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C209	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C210	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C211	1.5		65B28-015	NPO-SI 1.5	TCZ-1R5	C10V15C	TCO-1.5	ZT-5515	5TCCB-V15	10%
C212	.5-3		66A38-6		829-3		3115-D	CT565A		
C213	47		65D10-73							N1400 5%
C214	.5-3		66A38-6		829-3		3115-D	CT565A		
C215	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C216	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C217	10		65D10-160							N2200 5%
C218	1		65B28-010							10%
C219	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	

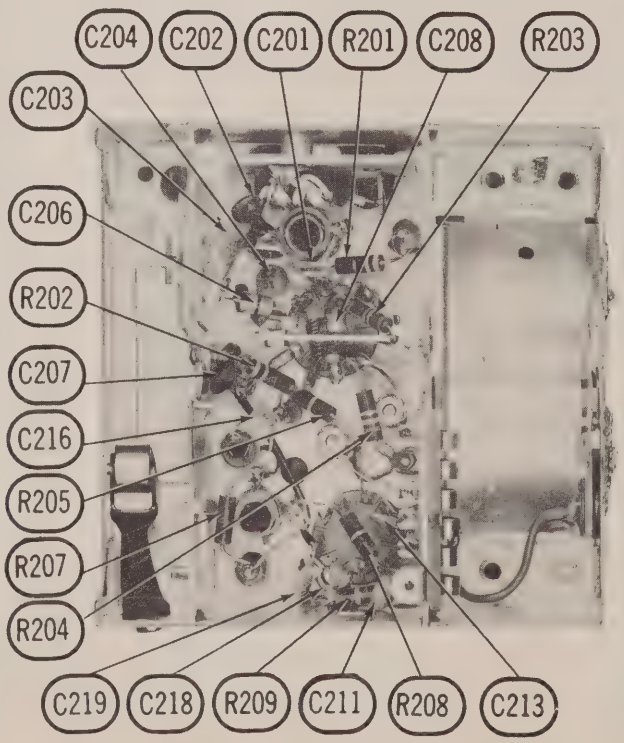
RESISTORS

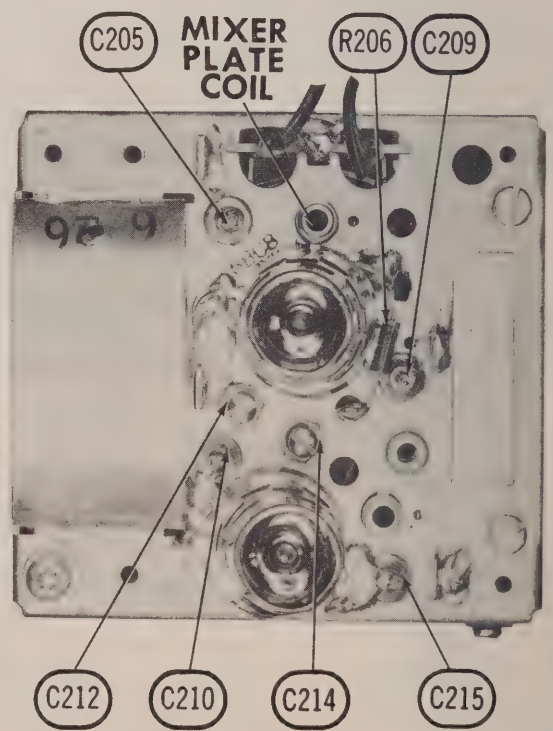
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R201	3900Ω		60B8-392	
R202	33Ω		60B8-330	
R203	820K		60B8-824	
R204	560K		60B8-564	
R205	10K		60B8-103	

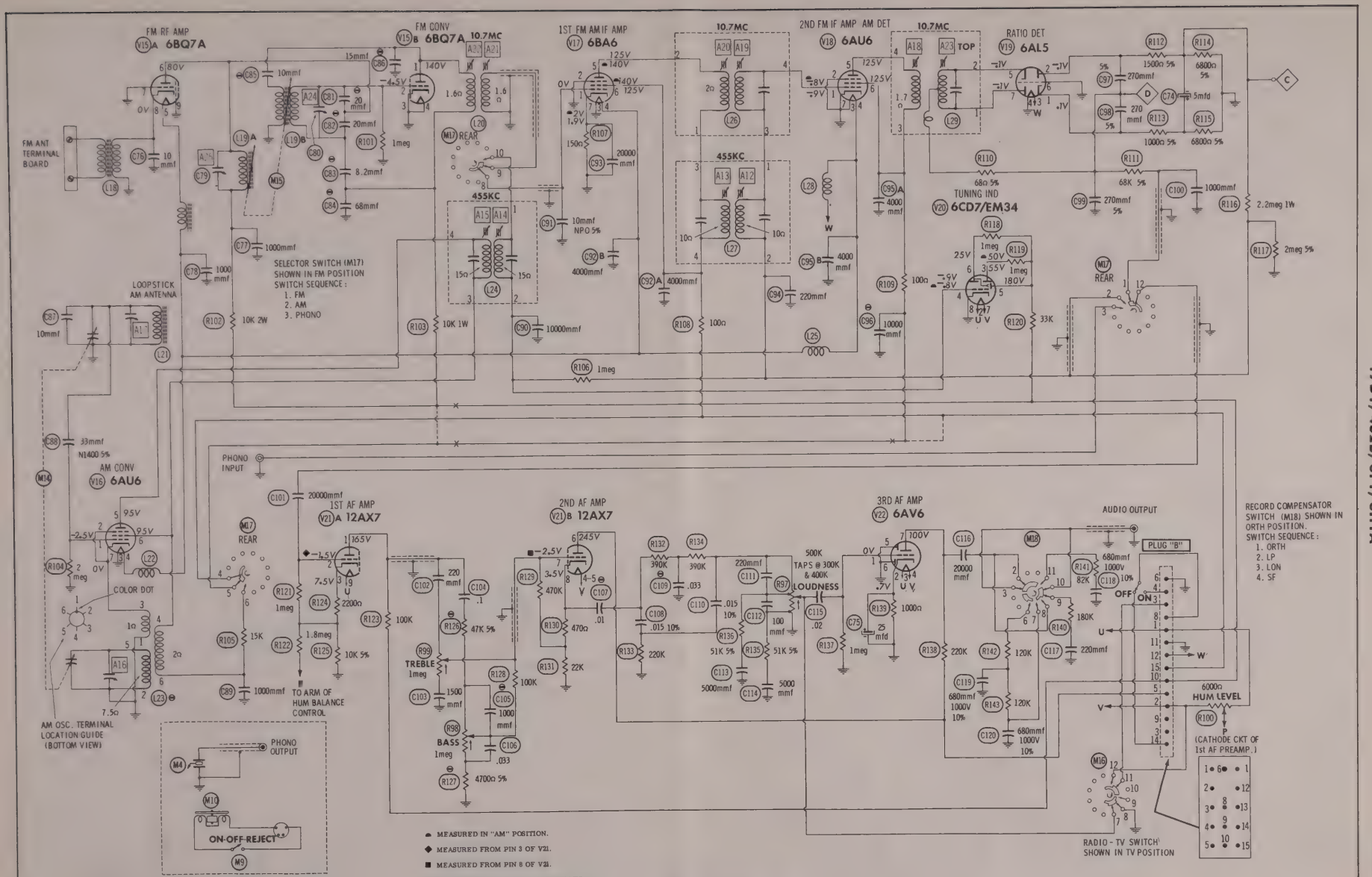
ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R206	1meg		60B8-105	
R207	1000Ω		60B8-102	
R208	10K		60B8-103	Note 1
R209	10K		60B8-103	

Note 1. Some versions may use 22K (Part #60B8-223) in this application.





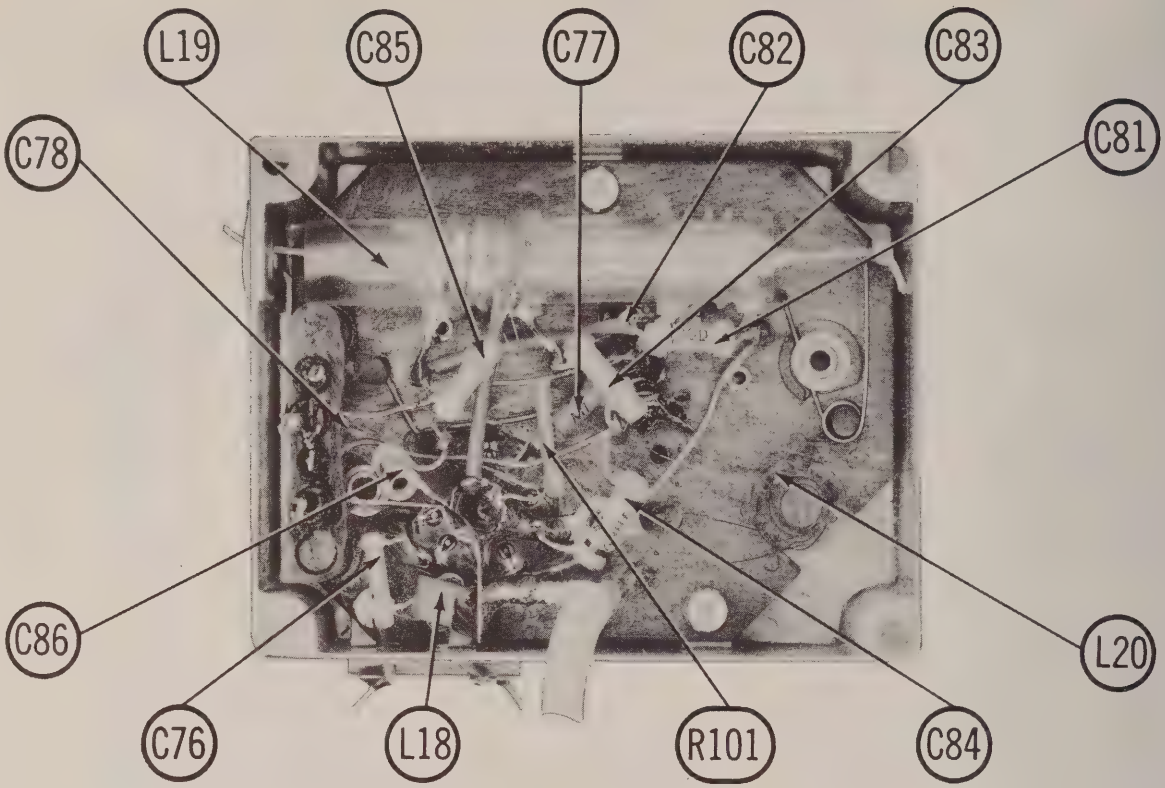
RF TUNER #94E144-25



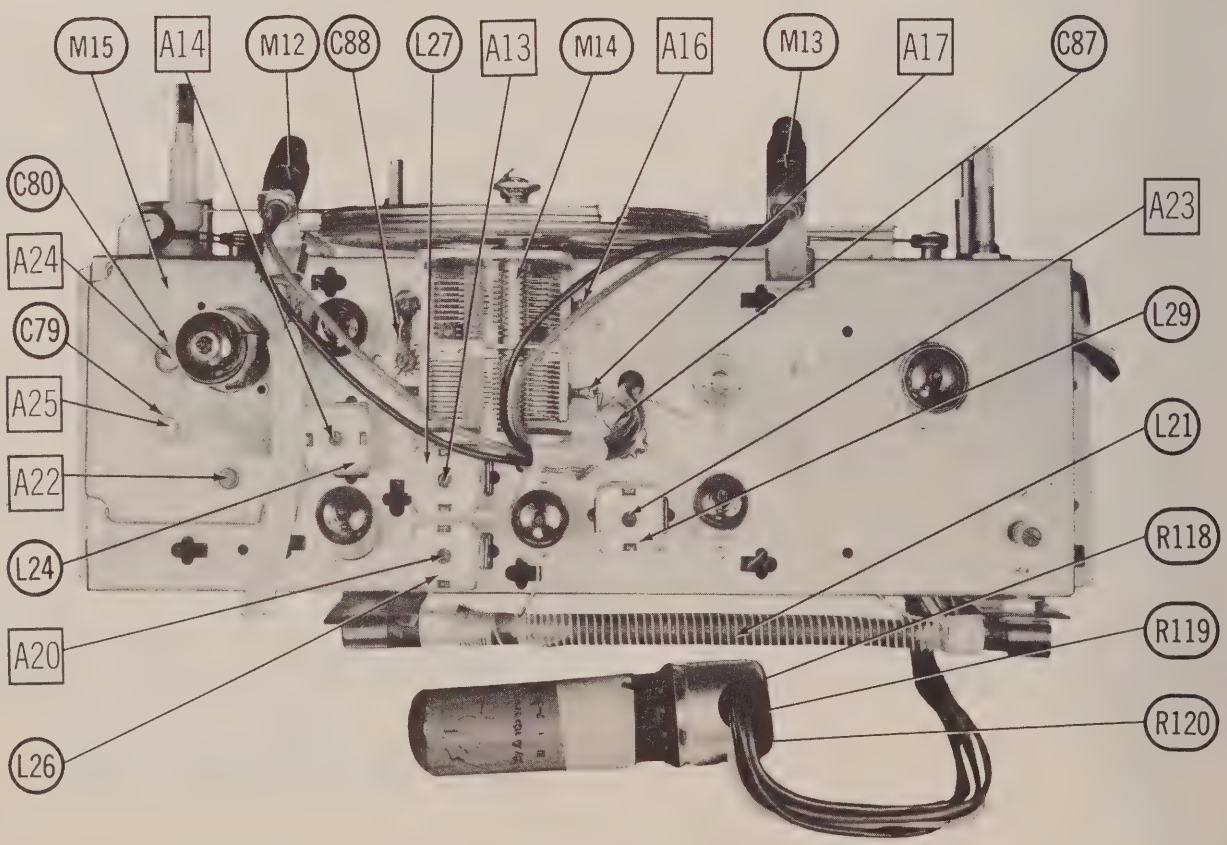
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

FM-AM TUNER CHASSIS 8H1A

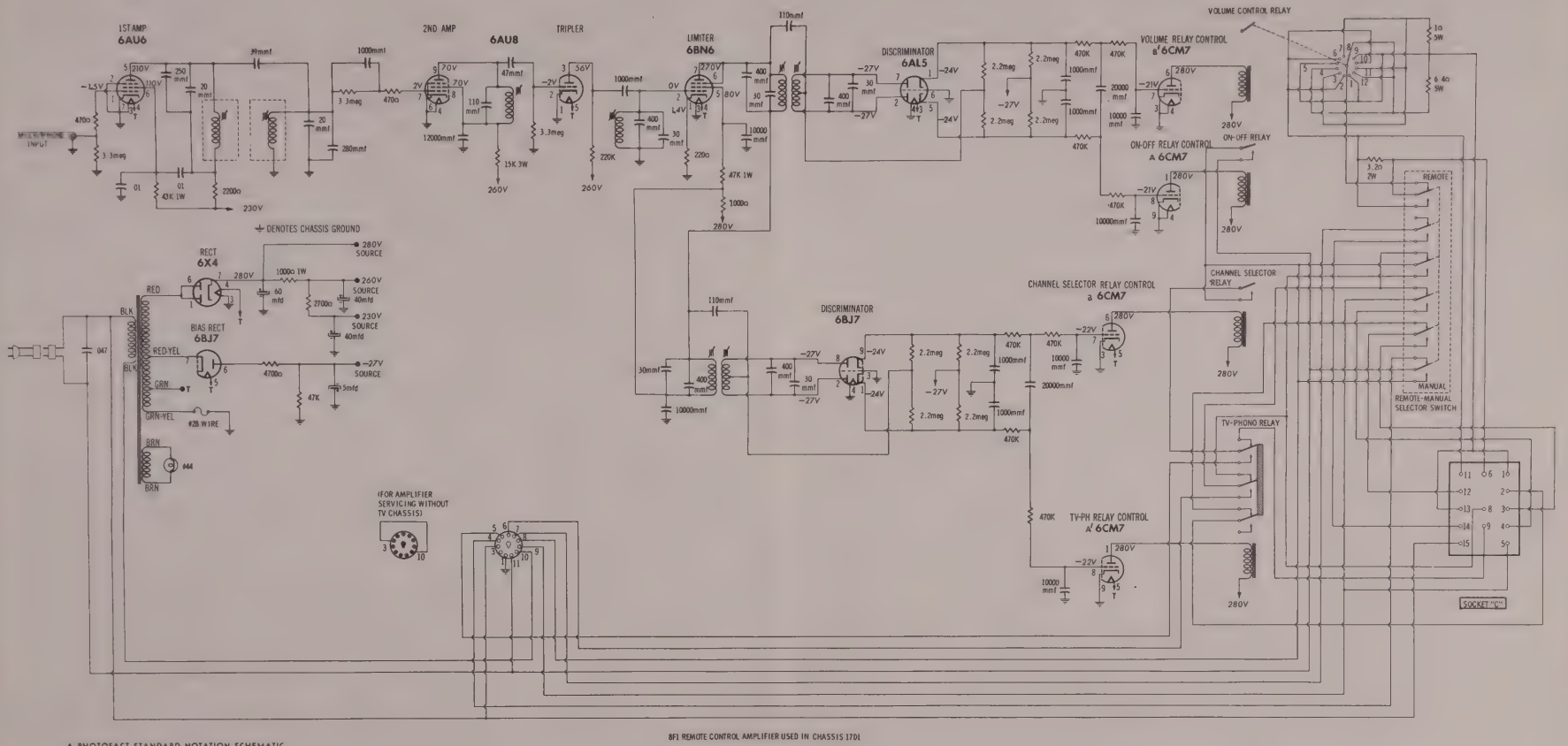
SET 404 FOLDER 1



FM RF AMP CHASSIS

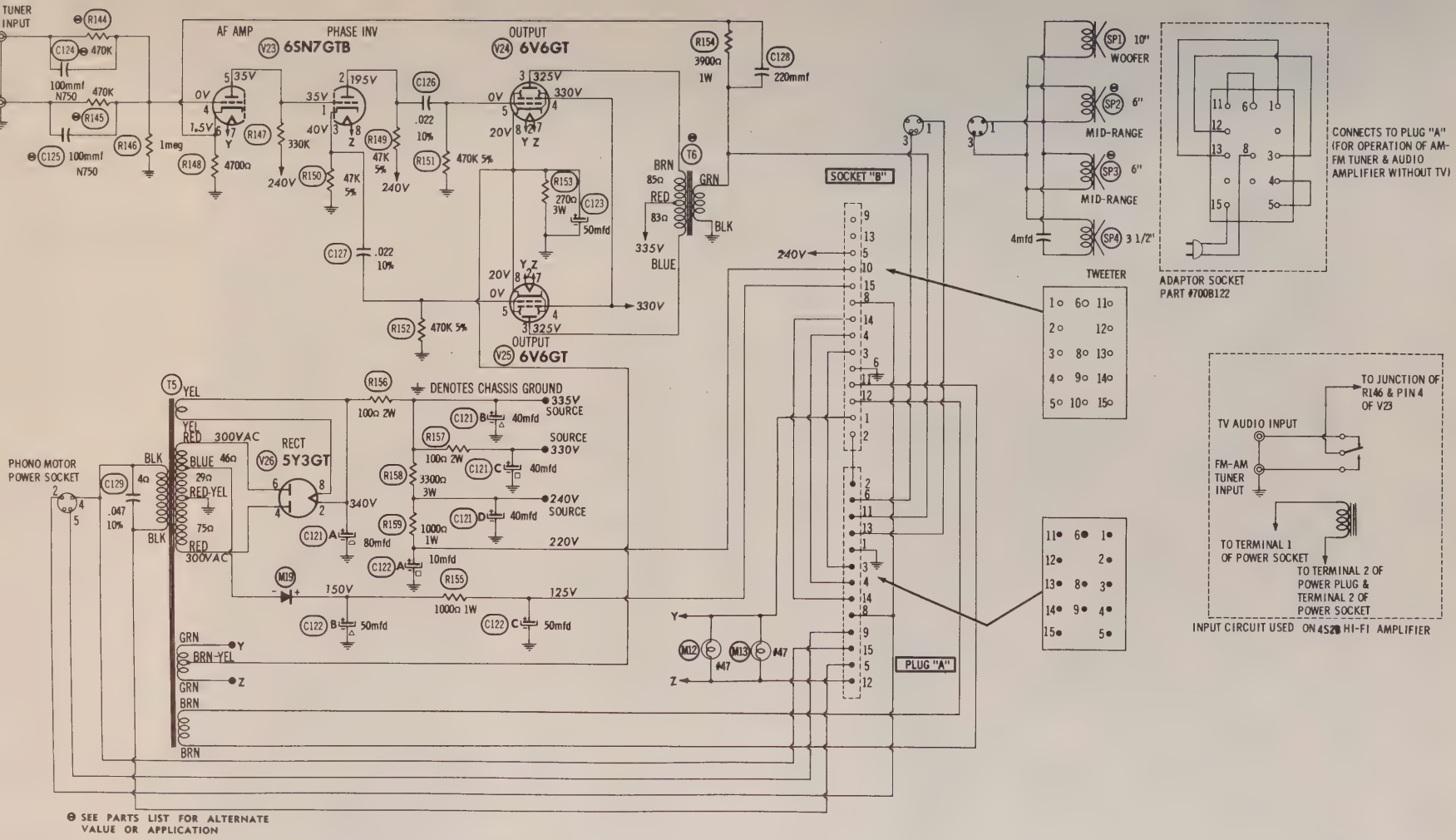


FM-AM CHASSIS - TOP VIEW



REMOTE CONTROL UNIT 8F1

CHASSIS - BOTTOM VIEW



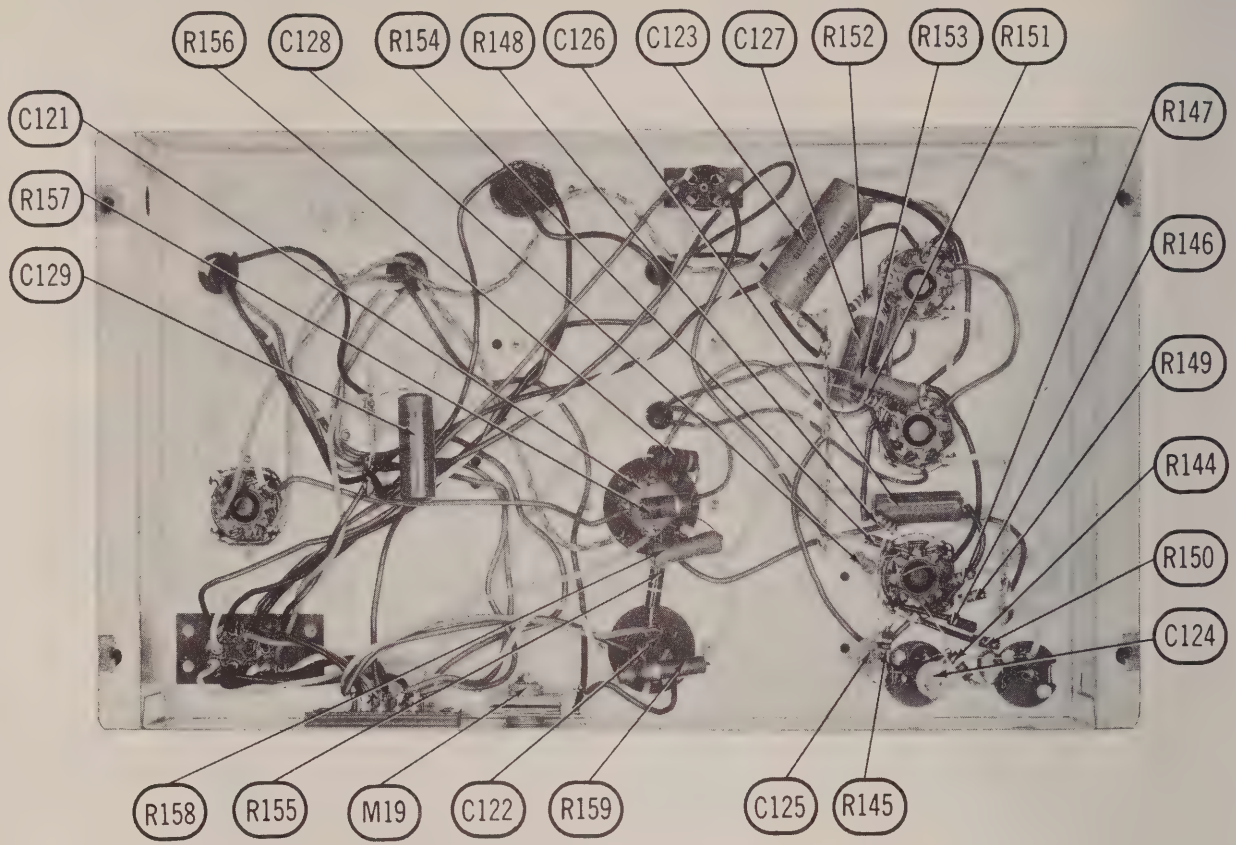
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

AMPLIFIER CH. 4S2A, B

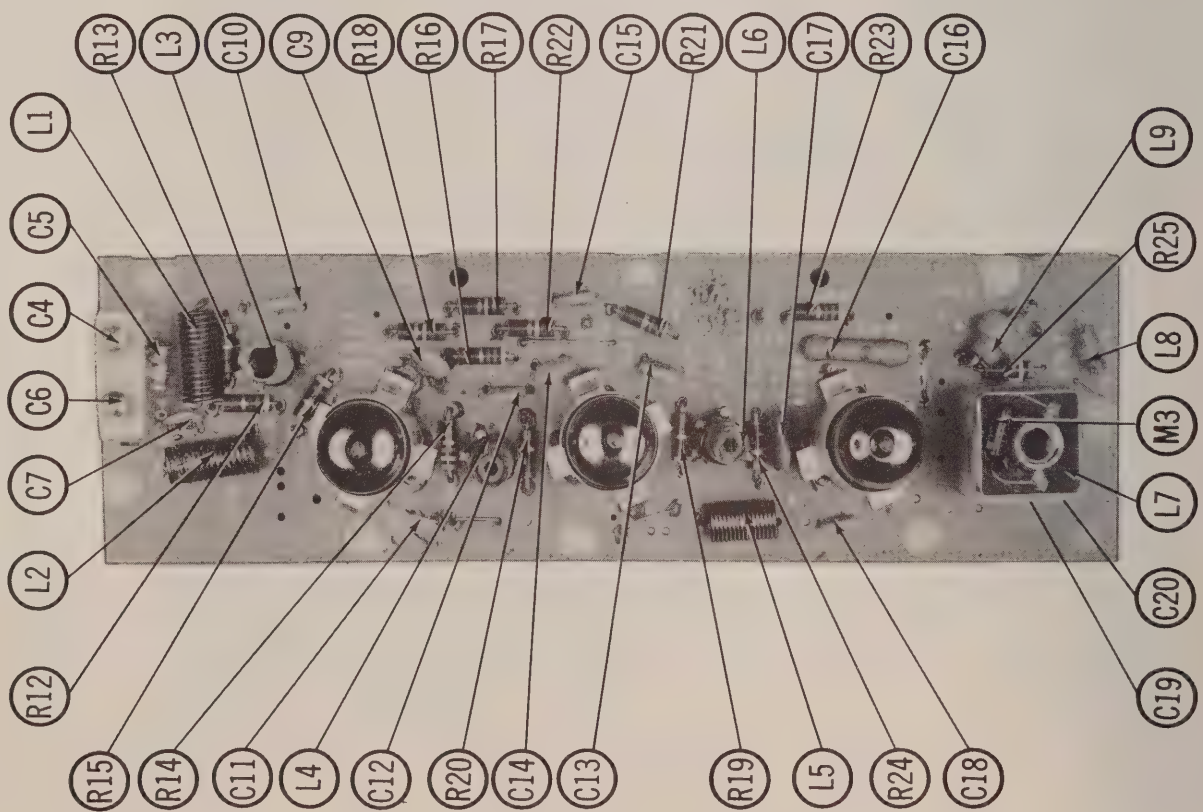
ADMIRAL CHASSIS 17L1, B, 17AL1, 17D1, 4S2B, 8F1, 8H1A

FOLDER 1

PAGE 13



AMP CHASSIS BOTTOM VIEW



VIDEO IF PRINTED BOARD

PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st. Video IF Amp.	6BZ6	
V2	2nd. Video IF Amp.	6BZ6	
V3	3rd. Video IF Amp.	6CB6	
V4	Video Output-Sound IF Amp	6AW8A	
V5	AGC Keying-Noise Limiter -Sync Sep.	6BU8	
V6	Audio Det.	6DT6	

ITEM No.	USE	TYPE	NOTES
V7	Sync Phase Inv. -Vert. Mult.	6CG7	
V8	Vert. Mult. -Vert. Output	6DB5	
V9	Horiz. Mult.	6CG7	
V10	Horiz. Output	6CD6GA	
V11	Damper	6AU4GTA	
V12	HV Rect.	1B3GT	
V13	LV Rect.	5V3	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	ADMIRAL PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V14	21CEP4A		21CEP4 ①	21CEP4	① "Silverama" ®

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲60	300	67D15-308	AFH3-29-25	C0234	FP330.9	TMT-164	D-147	TVL-2639
B	▲100	300							
C2A	▲60	300	67D15-309	AFH4-46-10		FP430.95		Q-149	*R2631
B	■5	300							
C	▲50	50							
D	20	50 ①							
C3A	▲50	300	67D15-204	AFH3-41	C0320	FP343.6	TMT-47	D-132	*R2574
B	▲10	300							

* Non-catalog item.
① This section not used.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	.5-8		66A38-8						
C5	14		65D6-40						NPO 2%
C6	3-12.5								
C7	18		65D10-121		DTZ-18				NPO 5%
C8	1.0	100	64A10-3	P288N-1.0		CUB2W1	GEM-21	2TM-M1	
C9	820		65D10-91	BPD-0008	DD-821	BYA10T82		5GA-T82	
C10	820		65D10-91	BPD-0008	DD-821	BYA10T82		5GA-T82	
C11	820		65D10-91	BPD-0008	DD-821	BYA10T82		5GA-T82	
C12	820		65D10-91	BPD-0008	DD-821	BYA10T82		5GA-T82	
C13	820		65D10-91	BPD-0008	DD-821	BYA10T82		5GA-T82	
C14	820		65D10-91	BPD-0008	DD-821	BYA10T82		5GA-T82	
C15	820		65D10-91	BPD-0008	DD-821	BYA10T82		5GA-T82	
C16	560		65D6-131						N3300 5%
C17	5000		65D10-152	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C18	820		65D10-91	BPD-0008	DD-821	BYA10T82		5GA-T82	
C19	3.3		65D6-89	NPO-DI 3.3	DTN-3R3	C10V33C	ZT-5533	5TCCB-V33	NPO 10%
C20	6.8		65B41-068	NPO-SI 6.8	TCZ-6R8	C10V68C	ZT-5568	5TCCB-V68	10%
C21	.22	400	64B8-24	P488N-22		CUB4P22	GEM-4022	4TM-P22	
C22	.001	1600	64B2-32	P1688N-001	DD16-102	CUB16D1	GEM-1621	MB-D1	
C23	10000		65D10-41	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C24	.022	400	64B8-30	P488N-022	DD-203	CUB4S22	GEM-4122	4TM-S22	
C25	47		65D10-92		TCZ-47				NPO 5%
C26	47		65D10-92		TCZ-47				NPO 5%
C27	4.7		65B28-047	NPO-DI 4.7	TCZ-4R7				10%
C28	47		65D10-92		TCZ-47				NPO 5%
C29	1000		65D10-53	BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C30	4.5		65B27-045						5%
C31	82		65D10-98						NPO 5%
C32	.047	1000		P1088N-047			GEM-10147	10TM-S47	
C33	18		65D10-140						N220 5%
C34	.047	200	64C16-55	P288N-047		BC2S47J	ACE6147	2SE-S47	
C35	4700		65D10-71	BPD-0047	DD-472	BYA10D47	UC-5247	5GA-D47	
C36	10000		65D10-41	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C37	300		65D10-141	DI-0003	DD-301	L10T3	UC-533	5GA-T3	
C38	10000		65D10-41	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C39	100		65D10-105		DTN-100				NPO 5%
C40	4700		65D10-112	BPD-0047	DD-472	BYA10D47	UC-5247	5GA-D47	
C41	75		65D10-79						N750 ①
C42	35		65D10-78						N220 ①
C43	1500		65D10-103	BPD-0015	DD-152	BYA10D15	DC5215	5HK-D15	
C44	4700		65D10-112	BPD-0047	DD-472	BYA10D47	UC-5247	5GA-D47	
C45	.1	200	64C16-53	P288N-1		BC2P1J	ACE401	2SE-P10	
C46	150		65D10-85	BPD-00015	DD-151	L10T15	UC-5315	5GA-T15	
C47	10000		65D10-41	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C48	4700		65D10-71	BPD-0047	DD-472	BYA10D47	UC-5247	5GA-D47	
C49	4700		65D10-71	BPD-0047	DD-472	BYA10D47	UC-5247	5GA-D47	
C50	10000		65D10-41	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C51	2200		65D10-111	BPD-0022	DD-222	BYA10D22	UC-5222	5GA-D22	
C52	.047	200	64C15-155						2% Drift
C53	.1	400	64C16-30	P488N-1		BC6P1J	ACE401	4SE-P10	
C54	.1	400	64C16-130						2% Drift
C55	.001	1600	64B2-32	P1688N-001	DD16-102	CUB16D1	GEM-1621	MB-D1	
C56	.047	200	64B8-41	P288N-047	DF-503	CUB2S47	GEM-2047	2TM-S47	
C57	.022	600	64B22-11						10%
C58	.001	400	64B2-24				GEM-1621		10%
C59	.001	400	64B2-24				GEM-1621		10%
C60	4700		65D10-71	BPD-0047	DD-472	BYA10D47	UC-5247	5GA-D47	
C61	.022	200	64C16-57	P288N-022		BC2S22J	ACE612	2SE-S22	
C62	3900		65B21-392	1464-0039		1R5D39		MS-239	10%
C63	390		65B21-391	1464-00039	D6-391	5R5T39		MS-339	10%
C64	680		65B21-681	1464-00068	D6-681	1R5T68		MS-368	10%
C65	4700		65D10-71	BPD-0047	DD-472	BYA10D47	UC-5247	5GA-D47	
C66	.047	400	64B8-28	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C67	.01	400	64B8-32	P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C68	.1	600	64B8-7	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C69	.033	600	64C25-10	P688N-033	DF-303	CUB6S33	GEM-6133	6TM-S33	

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ADMIRAL Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL DUBILIER Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C70	150	2000	65D10-149						N1500 10%
C71	150	2000	65D10-149						N1500 10%
C72	120	2000	65D10-148						N1500 10%
C73	047	600	64B2-36	P588N-047	DF-503	CUB6847	GRM-6147	STM-S47	③

1 Not used in chassis stamped Run 23.
2 Not used in Ch. 17DI, Run 19.

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ADMIRAL Part No.	CENTRALAB Part No.	CLAROSTAT Part No.	IRC Part No.	MALLORY Part No.	INSTALLATION NOTES
R1	3meg	1	75B41-1					Volume- Tap ④ 1meg & 1.5meg
R3A	3meg	1	75B17-21	F1-79				Bass
B	1meg	1		R3-61		♦ (QJ-964	♦♦ (UE3810	Treble
R3A	100K	1	75M17-23	F1-21		■ QJ-1079	■	Brightness
B	1000Ω	1		R3-5				Contrast
R4A	300K	1	75D13-93	AB-46	A47-300K-S	QJ-129	U43	Vert. Hold, Note 1
B	Shaft			AK-6	RS-3/16	NQ	DS-37	
R5A	500Ω	½	75D80-103	AB-4	A47-500-S	QJ-103	PTA52L	Vert. Lin.
B	Shaft			AK-1	FKS-1/4	TQ	Not Req.	
R6A	1.5meg	½	75D80-106	BX-742	A47-1.5meg	QJ-138	TA155L	Height
					-S			
B	Shaft			Not Req.	FKS-1/4	TQ	Not Req.	
R7A	100K	½	75D80-101	AB-40	A47-100K-S	QJ-126	PTA15L	Super Range Finder
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R8A	10K	½	75D80-106	AB-14	A47-10K-S	QJ-116	TA14L	Horiz. Drive
B	Shaft			AK-1	FKS-1/4	TQ	Not Req.	

♦ "Concentrikit" Equivalent: K-4 Kit, Base Elements & Shafts Bil-140, P1-404 (Panel) Bil-137, R1-233 (Rear)
♦♦ "STA-LOC" Equivalent: FC36A, OS2125, RU16L, RS2687.
■ "Concentrikit" Equivalent: K-4 Kit, Base Elements & Shafts Bil-138, P1-404 (Panel) Bil-137, R1-233 (Rear)
■■ "STA-LOC" Equivalent: FC15L, OS2145, RU13R, RS2625.
Note 1. Ch. 17DI uses 300K with On-Off switch for remote control (Part #75B38-3).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL Part No.	NOTES
R9	10meg		60B8-106	Note 1
R10	2200Ω		60B8-222	Note 2
R11	8200Ω	4	60B2-822	Note 3
R12	4700Ω		60B8-472	
R13	1000Ω		60B8-102	
R14	39K		60B8-393	Note 4
R15	47Ω		60B8-470	
R16	470Ω		60B8-471	
R17	22K		60B8-223	
R18	220K		60B8-224	
R19	4700Ω		60B8-472	
R20	68Ω		60B8-680	
R21	470Ω		60B8-471	
R22	220K		60B8-224	
R23	470Ω		60B8-471	
R24	150Ω		60B8-151	
R25	3900Ω		60B8-392	
R26	100Ω		60B8-101	
R27	3900Ω		60B8-392	
R28	180Ω		60B8-181	Note 5
R29	5600Ω	4	61B24-443	
R30	180K		60B8-184	
R31	180K		60B8-184	Note 6
R32	130K		60B8-134	Note 6
R33	82000Ω	1	60B14-823	
R34	47K		60B8-473	
R35	15K		60B8-153	
R36	4.7meg		60B8-475	
R37	4.2meg		60B8-235	
R38	150K		60B8-154	
R39	100K		60B8-104	
R40	47K	1	60B14-473	
R41	430K 5%		60B7-434	
R42	100K		60B8-104	
R43	560K		60B8-564	
R44	82000Ω		60B8-823	
R45	680Ω		60B8-681	
R46	390K		60B8-394	
R47	39K		60B8-393	
R48	100K		60B8-104	
R49	33K 5%		60B7-333	
R50	47K		60B8-473	
R51	390K		60B8-394	
R52	15K		60B8-153	
R53	270K		60B8-274	
R54	4.7meg		60B8-475	
R55	56K		60B8-563	
R56	47K		60B8-473	
R57	6800Ω		60B8-682	
R58	5600Ω		60B8-562	
R59	3300Ω		60B8-332	
R60	4.7meg		60B8-475	
R61	2.2meg		60B8-225	
R62	15K		60B8-153	
R63	15K		60B8-153	
R64	220K		60B8-224	
R65	470K		60B8-474	
R66	56K		60B8-563	
R67	2.2meg		60B8-225	
R68	100Ω		60B8-101	
R69	180Ω	1	60B14-181	
R70	18K	1	60B14-183	
R71	470Ω	3	61B24-317	
R72	220K		60B8-224	
R73	39K		60B8-393	
R74	220Ω		60B8-221	
R75	220Ω		60B8-221	
R76	3.9Ω		61A37	
R77	100K 5%		60B7-104	
R78	100K 5%		60B7-104	
R79	4.7meg		60B8-475	
R80	470K		60B8-474	
R81	5600Ω		60B8-562	
R82	10K 5%		60B7-14	
R83	1000Ω		60B8-102	
R84	82K		60B8-823	
R85	470Ω		60B8-474	
R86	100Ω		60B8-101	
R87	100Ω		60B8-101	
R88	10K	3	61B24-349	
R89	33K	2	60B20-223	
R90	220K		60B8-224	
R91	4700Ω		60B8-472	
R92	1.8Ω		60B28-46	
R93	1000Ω	2	60B20-102	
R94	3000Ω	7	61B20-15	
R95	270K	1	60B14-274	
R96	270K		60B8-274	

Note 1. Ch. 17ALI, Run 18 and higher use a 15meg in this application (Part #60B8-156).
Note 2. Not used in Ch. 17ALI.
Note 3. Ch. 17LI use 2200Ω 2W in this application (Part #60B20-222).
Note 4. Some versions may use 15K in this application (Part #60B8-153).
Note 5. Ch. 17LI and 17ALI use 470Ω in this application (Part #60B8-471).
Note 6. Ch. 17LI and 17ALI use 100K in this application (Part #60B8-104).

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA ADMIRAL Part No.	Halldorson Part No.	Merit Part No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No
T1	117V ①1.84A	520VCT ②.270A	5V ③5.6A	80C82-2 ①					26R47	
	SEC. 3	SEC. 4	SEC. 5							
	6.3V ④9.7A									

① Ch. 17DI use part #80C85-13.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA ADMIRAL Part No.	Halldorson Part No.	Merit Part No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.	NOTES
T2	Vert. Output	79B43-14						A-13X ①	
T3A	Yoke-Horiz. (18.8MH)	94D47-3 ②		MDF-117	Y-110	DY-27A	Y-52	Y-60 &	
B	(110°)-Vert. (13.6MH)			②④	③④	③④⑤	②④	NW25 ③	
	Alternate Yoke	94D50-3							
M11	Rear Cover & Centering Device	94C148-1 ⑥							
	Rear Cover & Centering Device	94C152-1 ⑦							
	Horiz. Output	79D77-3		HVO-173	X-152		FLY-137		

① Connect as autoformer.
② Includes R74, R75 and R76. Does not include M11.
③ Use original rear cover and centering device.
④ Use original damping network.
⑤ Remove damping capacitor from yoke terminals #1 and #2.
⑥ 3 3/4" Rear cover and centering device used with Yoke (94D147-3).
⑦ 3 1/4" Rear cover and centering device used with Yoke (94D150-3).

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ADMIRAL Part No.	Meissner Part No.	Merit Part No.	Miller Part No.	Ram Part No.	NOTES
L1	47.25MC Trap Coil	73B37-3	19-1001	BC-562	4604		1.48 Microhenries, Note 1
L2	41.45MC Trap Coil	73B37-3	19-1001	BC-562	4604		1.48 Microhenries, Note 1
L3	1st. Video IF	72C132-31					
L4	2nd. Video IF	72C132-38					
L5	Fil. Choke	73B37-2	19-1001	BC-562	4604		1.4 Microhenries, Note 2
L6	3rd. Video IF	72C132-38					
L7	4th. Video IF	72B191-2					Includes M3, C19
L8	Resonant Choke	73B24-7					7.7 Microhenries
L9	Shunt Peaking Coil	73B5-30	1f 3500	TV-203	6174	VP-8	500 Microhenries
L10	Resonant Choke	73B31-3.					28 Microhenries, Note 3
L11A	4.5MC Trap	72B185-2					Includes C25, C26, C27
B	1st. Sound IF						
L12	Series Peaking Coil	73B5-23	19-3180 *	TV-184 *	6180 *	VP-5 *	189 Microhenries, wound on 4700Ω resistor
L13	Shunt Peaking Coil	73B5-36					Wound on 10K resistor
L14	2nd. Sound IF	72B186-1					
L15	Quadrature Coil	72C132-37					

* Parallel with 4700Ω resistor.
Note 1. Part #73B37-1 used in Ch. 17ALI and 17LI stamped Run 17; Ch. 17DI stamped Run 19.
Note 2. Part #73B27-2 used in Ch. 17ALI and 17LI stamped Run 17.
Note 3. Part #73B31-1 used in Ch. 17ALI and 17LI stamped Run 17; Ch. 17DI stamped Run 19.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ADMIRAL Part No.	Meissner Part No.	Merit Part No.	Miller Part No.	Ram Part No.	Thordarson Part No.	NOTES
L16	53Ω		94C17-4		TV-164				22-46 Millihenries

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	RATINGS DC RES.	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA ADMIRAL Part No.	Halldorson Part No.	Merit Part No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No
L17	.285A	42Ω	1.5 Hy.	74B18-25	C5037	C-2996		C-2326	26C93	C-17X

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA ADMIRAL Part No.	FEDERAL Part No.	GENERAL ELECTRIC Part No.	INTERNATIONAL Part No.	SARKES TARZIAN Part No.	NOTES
M1		93B5-4 ①	1215 ①②		1T ①③		① Selenium type. ② Two required.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA ADMIRAL Part No. FUSE	ADMIRAL Part No. HOLDER	LITTELFUSE Part No. FUSE	LITTELFUSE Part No. HOLDER	BUSS Part No. FUSE	BUSS Part No. HOLDER
M2	N	¼ A 125V 3AG	84A18-38		333.500 (N-¼-125V-8/B)	348009	N ¼	HN 3/10 to 1/2

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA ADMIRAL Part No.	CBS Part No.	SYLVANIA Part No.	NOTES
M3	1N87 *	1N87	1N80	1N80	Video Det. (Pigtail)

* Some versions may use a 1N60 or 1N295 in this application.

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA ADMIRAL Part No.	ASTATIC Part No. CARTRIDGE	ASTATIC Part No. NEEDLE	ELECTRO-VOICE Part No. CARTRIDGE	ELECTRO-VOICE Part No. N-CUNT	REMARKS
M4	409B47-2	310-TB-TS	N8-1 & N8-3	58	PT-1	

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA ADMIRAL Part No.	JENSEN Part No.	WALCO Part No.	REMARKS
M5	98C15-82	†JPS-36 or †♦JPS-36D or ♦JPS-36D	†W-35TPS or †♦W-35DS or ♦W-35TPD	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL Part No.	NOTES
M6	Lamp	81A1-5	#44
M7	Tuner	94D51-8	VHF, Ch. 17LIB
	Tuner	94E144-35	VHF, Ch. 17LI
	Tuner	94D51-4	VHF, Ch. 17DI
	Tuner	94E144-33	UHF-VHF, Ch. 17ALI
	Tuner	94D12-3	UHF, Ch. 17ALI
M8	Switch	77A70-8	On-Off, Ch. 17LIB
	Switch	77A70-4	On-Off, Ch. 17ALI, 17DI, 17LI
	Switch	40AA-1	Phono, On-Off-Reject
M10	Motor	407C27	Phono, 117 Volts AC
M11	Centering Device	94C148-1	For 3 3/4" yoke, includes yoke rear cover
	Centering Device	94C152-1	For 3 1/4" yoke, includes yoke rear cover
	Printed Board	A5775-2	Video IF
	Printed Board	A5780-3	Main

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	21D97-2	Models HF2IF32, 33, 34, HFA2IF32, 33, 34
Knob	33C258-4	Tuning, Drive Disc. Assy., Includes proper VHF Indicator, Models HF2IF32, 33, 34
Knob	33C258-5	Tuning, Drive Disc. Assy., Includes proper VHF Indicator, Models HFA2IF32, 33, 34
Knob	33C257-C	UHF Indicator, Models HF2IF32, 33, 34, HFA2IF32, 33, 34
Knob	33D231-16	Fine Tuning, Models HF2IF32, 33, 34, HFA2IF32, 33, 34
Knob	33D231-10	VHF Selector, Models HF2IF32, 33, 34, HFA2IF32, 33, 34
Knob	33C230-5	Bass, Treble, Brightness, Models HF2IF32, 33, 34, HFA2IF32, 33, 34
Knob	33C230-2	Contrast, Volume, Treble, Models HF2IF32, 33, 34, HFA2IF32, 33, 34
Knob	33C230-3	Vert. Hold, Models HF2IF32, 33, 34, HFA2IF32, 33, 34
Cabinet	35F403-2	Models HF2IF32, HFA2IF32
Cabinet	35F403-3	Models HF2IF33, HFA2IF33
Cabinet	35E403-4	Models HF2IF34, HFA2IF34

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-In	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8465 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

AM-FM TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V15	FM RF Amp. - FM Converter	6BQ7A	
V16	AM Converter	6AU6	
V17	1st. FM AM IF Amp.	6BA6	
V18	2nd. FM IF Amp-AM Det.	6AU6	
V19	Ratio Det.	6AL5	
V20	Tuning Indicator	6CD7/ EM34	
V21	1st. AF Amp -2nd. AF Amp	12AX7	
V22	3rd. AF Amp.	6AV6	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ADMIRAL Part No.	AEROVOX Part No.	CORNELL-DUBILIER Part No.	MALLORY Part No.	PYRAMID Part No.	SANGAMO Part No.	SPRAGUE Part No.
C74	5	50	67B4-37	PRS50V5	BBR5-50	TC30	TD-5-50	MT-0504	TVA-1303
C75	25	15	67A4-30	PRS25V25	BBR25-25	TC26	TD-25-25	MT-0J25	TVA-1205

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ADMIRAL Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C76	10			SI 10	D6-100	LT6Q1	UC-541	5GA-Q1	
C77	1000			SI 1000	D6-102	LT6Q1	UC-521	5GA-D1	
C78	1000			BPD-001	DD-103	BYA5DI	DC521	5HK-D1	
C79									
C80									
C81	20			SI 20	D6-200	LT6Q2	UC-542	5GA-Q2	⑤
C82	20			SI 20	D6-200	LT6Q2	UC-542	5GA-Q2	⑤
C83	8.2								⑤
C84	68			SI 68	D6-680	LT6Q68	UC-5468	5GA-Q68	⑤
C85	10			SI 10	D6-100	LT6Q1	UC-541	5GA-Q1	⑤
C86	15			SI 15	D6-150	LT6Q15	UC-5415	5GA-Q15	⑤
C87	10			SI 10	D6-100	LT6Q1	UC-541	5GA-Q1	⑤
C88	33		65D10-119						
C89	1000		65D10-6	BPD-001	DD-102	BYA5DI	DC521	5HK-D1	N1400 5%
C90	10000		65D10-3	BPD-01	DD-103	BYA5SI	DC511	5HK-S1	
C91	10		65D6-118		TCZ-10				NPO 5%
C92A	4000		65A17-1	BPD-2X004	DD-402	BYC6DD4	DCD524	5HK-2D4	
B	4000				DD-402				
C93	40000		65D10-28	BPD-02	DD-203	BYB6S2		5HK-S4	
C94	220		65D6-80	SI 220	D6-221	LT6T22	UC-5322	5GA-T22	
C95A	4000		65A17-1	BPD-2X004	DD-402	BYC6DD4	DCD524	5HK-2D4	
B	4000				DD-402				
C96	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-S1	⑥
C97	270		65B1-4	1469-00047	TCZ-270	5R5T27		MS-327	5%
C98	270		65B1-4	1469-00047	TCZ-270	5R5T27		MS-327	5%
C99	270		65B1-4	1469-00047	TCZ-270	5R5T27		MS-327	5%
C100	1000		65D10-53	BPD-001	DD-102	BYA6DI	DC521	5HK-D1	
C101	20000		65D10-38	BPD-02	DD-203	BYB6S2		5HK-S4	
C102	220		65D6-80	SI 220	D6-221	LT6T22	UC-5322	5GA-T22	
C103	1500		65D10-4	BPD-0015	DD-152	BYA10DI5	DC5215	5HK-D15	

ADMIRAL CHASSIS 17LI, B, 17ALI, 17DI, 452B, 8FI, 8HIA

FOLDER 1

AM-FM TUNER PARTS LIST AND DESCRIPTIONS (Con't)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C104	.1	400	64C24-32	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C105	1000		65D10-53	BPD-001	DD-102	BYA6D1	DC521	5HK-D1	⑥
C106	.033	400	64C25-10	P488N-033	DF-303	CUB4S33	GEM-4133	4TM-S33	
C107	.01	600		P688N-01	D6-103	CUB6S1	GEM-611	6TM-S1	⑦
C108	.015	200	64B2-26						10%
C109	.033	400	64B1-23	P488N-033	DF-303	CUB4S33	GEM-4133	4TM-S33	⑧
C110	.015	200	64B2-26						10%
C111	220		65D6-80	SI 220	D6-221	LT6T22	UC-5322	5GA-T22	
C112	100		65D6-3	SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C113	5000		65D10-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C114	5000		65D10-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C115	.02	400	64B1-24	P488N-02	DD-203	CUB4S2	GEM-412	4TM-S2	
C116	20000		65D10-28	BPD-02	DD-203	BYB6S2		5HK-S2	
C117	220		65D6-80	SI 220	D6-221	LT6T22	UC-5322	5GA-T22	
C118	680	1000	65D10-43						10%
C119	680	1000	65D10-43						10%
C120	680	1000	65D10-43						10%

① Some versions may use 10mmf in this application.
② Some versions may use 9mmf in this application.
③ Some versions may use 100mmf in this application.
④ Some versions may use 15mmf in this application.
⑤ Not used in some versions.
⑥ Chassis stamped Run 12 use 2000mmf in this application.
⑦ Some versions may use .003mfd ⓐ 400V in this application (Part #64B1-13).
⑧ Chassis stamped Run 12 use .02mfd in this application.

CONTROLS

ITEM No.	RATING RESIST-ANCE	RATING WATTS	REPLACEMENT DATA ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R97	500K	½	75D1-96				UDT285	Loudness, Taps ⓐ 300K & 400K
R98A	1meg	½	75D1-95	B-69	A47-1meg-S	Q11-137	U54	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R99A	1meg	½	75D1-95	B-69	A47-1meg-S	Q11-137	U54	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R100A	6000Ω	½	75D20-107	AB-10	A47-5000-S	Q11-114	SU-14	Hum Level
B	Shaft			AK-19	RN-3	TQ	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R101	1meg		60B8-105	
R102	10K	2	60B20-103	
R103	10K	1	60B14-103	
R104	2meg			
R105	15K		60B8-153	
R106	1meg		60B8-105	
R107	150Ω		60B8-151	
R108	100Ω		60B8-101	
R109	100Ω		60B8-101	
R110	68Ω 5%		60B7-680	
R111	68K 5%		60B7-683	
R112	1500Ω 5%		60B7-152	
R113	1000Ω 5%		60B7-102	
R114	6800Ω 5%		60B7-682	
R115	6800Ω 5%		60B7-682	
R116	2.2meg	1	60B8-225	
R117	2meg 5%			
R118	1meg		60B8-105	
R119	1meg		60B8-105	
R120	33K		60B8-333	
R121	1meg		60B8-105	
R122	1.8meg		60B8-185	

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R123	100K		60B8-104	
R124	2200Ω		60B8-222	
R125	10K 5%		60B7-103	
R126	47K 5%		60B7-473	Note 1
R127	4700Ω 5%		60B7-472	Note 2
R128	100K		60B8-104	
R129	470K		60B8-474	
R130	470Ω		60B8-471	
R131	22K		60B8-223	
R132	390K		60B8-394	
R133	220K		60B8-224	
R134	390K		60B8-394	
R135	51K 5%		60B7-513	
R136	51K 5%		60B7-513	
R137	1meg		60B8-105	
R138	220K		60B8-224	
R139	1000Ω		60B8-102	
R140	180K		60B8-184	
R141	82K		60B8-823	
R142	120K		60B8-124	
R143	120K		60B8-124	

Note 1. Chassis stamped Run 10 and Run 11 use 100K in this application.
Note 2. Chassis stamped Run 10 and Run 11 use 10K in this application.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ADMIRAL PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L18	FM Ant. Trans.	†					
L19A	FM RF Coil	†					
B	FM Osc. Coil	†					
L20	1st. FM IF	†					
L21	Loop Stick	69B229-1					
L22	Fil. Choke	73A2-8					1.2 Microhenries
L23	AM Osc. Coil	69A227-1					Tertiary - 2Ω, Note 1
L24	1st. AM IF	72D28-70	16-6758	BC352	12-C1	RF-1	
L25	Fil. Choke	73A2-13					1.2 Microhenries
L26	2nd. FM IF	72D28-68	16-3487	FM-254	1463		
L27	2nd. AM IF	72D28-71	16-6758	BC-353	12-C2	RF-2	
L28	Fil. Choke	73A2-12					1.2 Microhenries
L29	Ratio Det.	72D28-69	17-3498	FM-255	1465		

† Part of FM tuner assembly Part #53C2.
Note 1. Alternate Part #69B227-1.

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M12	Lamp	81A1-8	#47
M13	Lamp	81A1-8	#47
M14	Tuning Cap.	68C69	AM (Ant. 18-381mmf, Osc. 14-121mmf)
M15	Tuner	53C2	FM
M16	Switch	77B77-1	TV-Radio, Rotary wafer type
M17	Switch	77B76-1	AM-FM-Phono, Rotary wafer type
M18	Switch	77B56-4	Record Compensator, Rotary wafer type

AMP PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V23	AF Amp. -Phase Inv.	6SN7GT	
V24	Audio Output	6V6GT	
V25	Audio Output	6V6GT	
V26	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C121A	▲80	400	67D7-33		D0177	FP375.5	TMQ-120	Q-065	*R2646
B	▲40	400			BR4045	TC78	TD-40-450	MT-4540	
C	■40	400							
D	40	300							
C122A	■10	300	67D7-34	AFH3-114-60	XB0161	FP214	TMD-13	D-070	*R2647
B	▲50	150			BR1045	TC72	TD-10-450	MT-4510	
C	50	150							
C123	50	25	67A4-31	PRS25V50	BBR50-25	TC29	TD-50-25	MT-0250	TVA-1206

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C124	100		65D10-84	N750-DI 100	DTN-100	C10T1U	NT-531	5TCU-T1	N750 ①
C125	100		65D10-84	N750-DI 100	DTN-100	C10T1U	NT-531	5TCU-T1	N750 ①
C126	.022	400	64C24-36						10%
C127	.022	400	64C24-36						10%
C128	220		65D6-80	SI 220	D6-221	LT6T22	UC-5322	5GA-T22	
C129	.047	600	64C24-9						10%

① Not used in Ch. 4S2B, Run 19.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R144	470K		60B8-474	Note 1
R145	470K		60B8-474	Note 1
R146	1meg		60B8-105	
R147	330K		60B8-334	
R148	4700Ω		60B8-472	
R149	47K 5%		60B7-473	
R150	47K 5%		60B7-473	
R151	470K 5%		60B7-474	

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R152	470K 5%		60B7-474	
R153	270Ω	3	61B24-311	
R154	3900Ω		60B8-392	
R155	1000Ω	1	60B20-102	
R156	100Ω	2	60B20-101	
R157	100Ω	2	60B20-101	
R158	3300Ω	3	61B24-337	
R159	1000Ω	1	60B14-102	

Note 1. Not used in Ch. 4S2B, Run 19.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T5	117V ⓐ .75A	610VCT tap ⓐ 115VAC ⓐ .110A Total	5V ⓐ .92A	80B59-1						
	SEC. 3	SEC. 4								
	6.3V ⓐ 1.2A	6.3V ⓐ 2.4A								

TRANSFORMER (AUDIO OUTPUT)

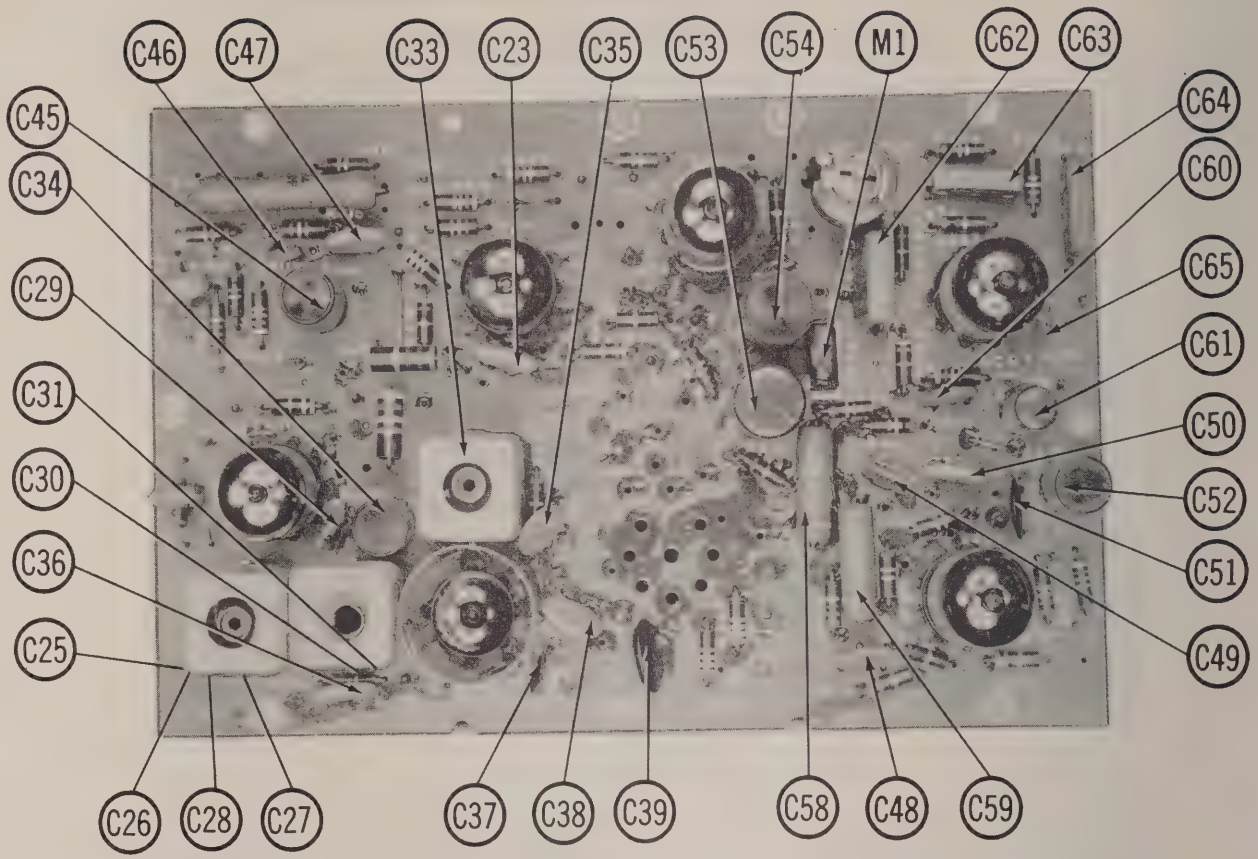
ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T6	4800Ω CT	3-4Ω	79C56-7 ①	Z1011	A-2935	AU-606	A-3830	24S63	S-57Z	① Alternate Part #79C56-8

SPEAKER

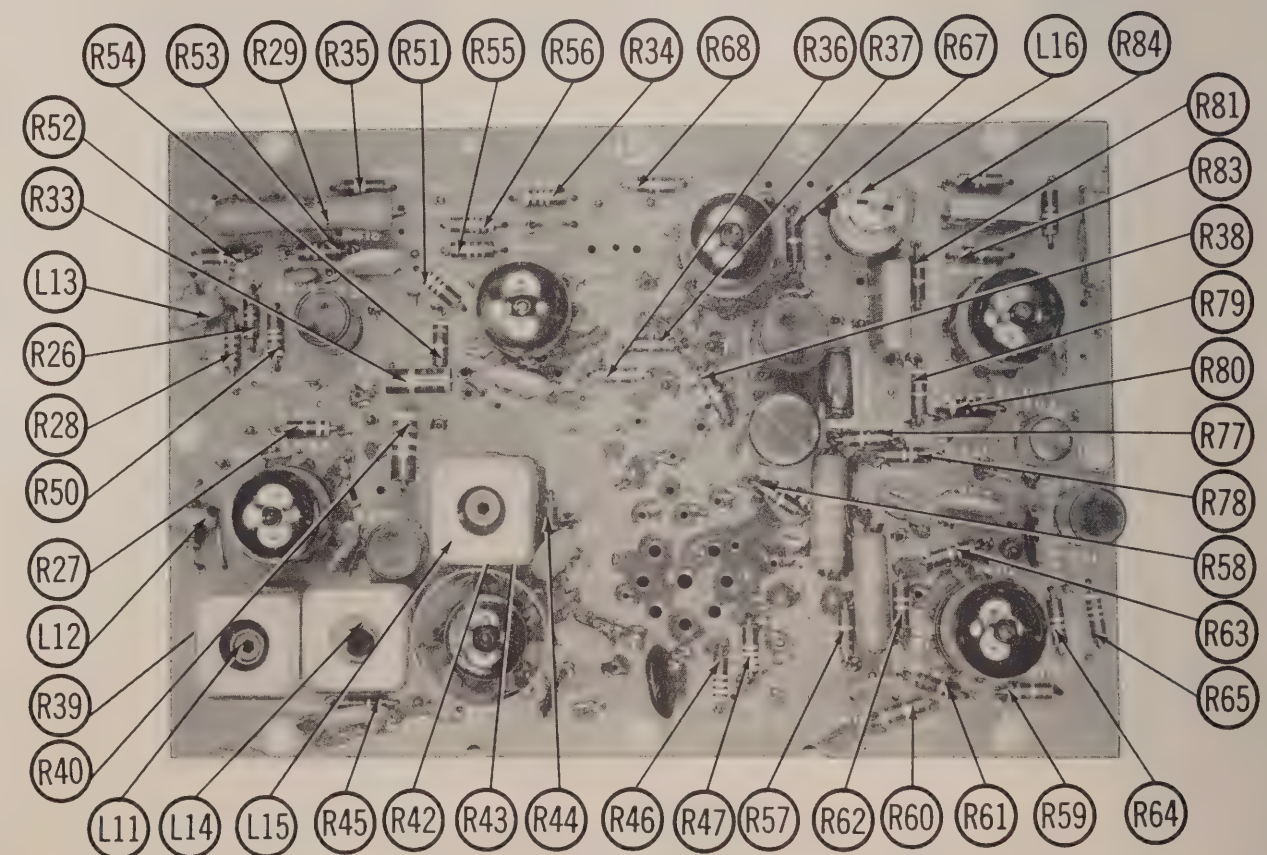
ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ADMIRAL PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	10"	PM	3-4Ω	78C114-2		① Some versions may use two 6" or two 2" x 10" speakers in this application.
SP2	6"	PM	3-4Ω	78C134-3 ①	6A21	
SP3	6"	PM	3-4Ω	78C134-3 ①	6A21	
SP4	3½"	PM	3-4Ω	78B91-2	3A15TZ3	
	2" x 10"	PM	3-4Ω	78C140-1 ①		

RECTIFIERS

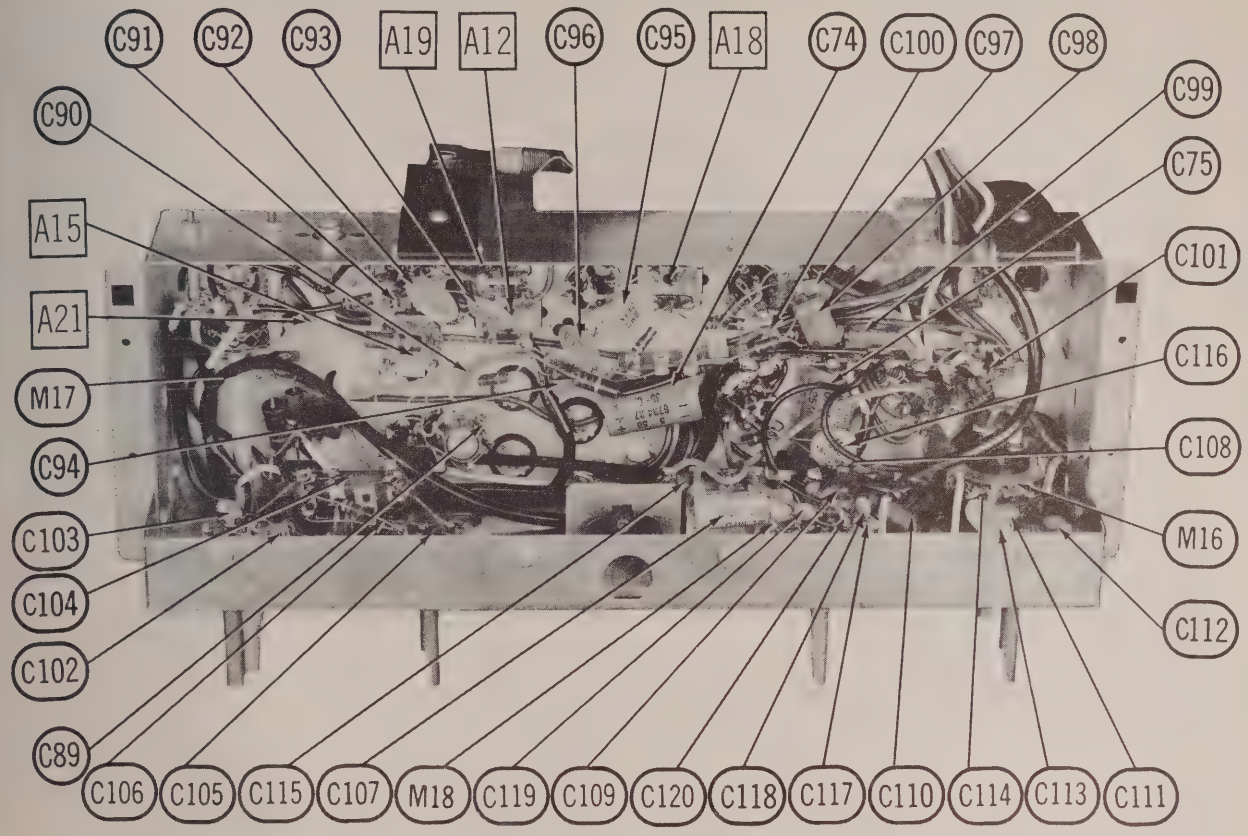
ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA ADMIRAL PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M19	.026A	93B1-6 ①	1002A ①		RS065 ①	M150 ①	① Selenium type.



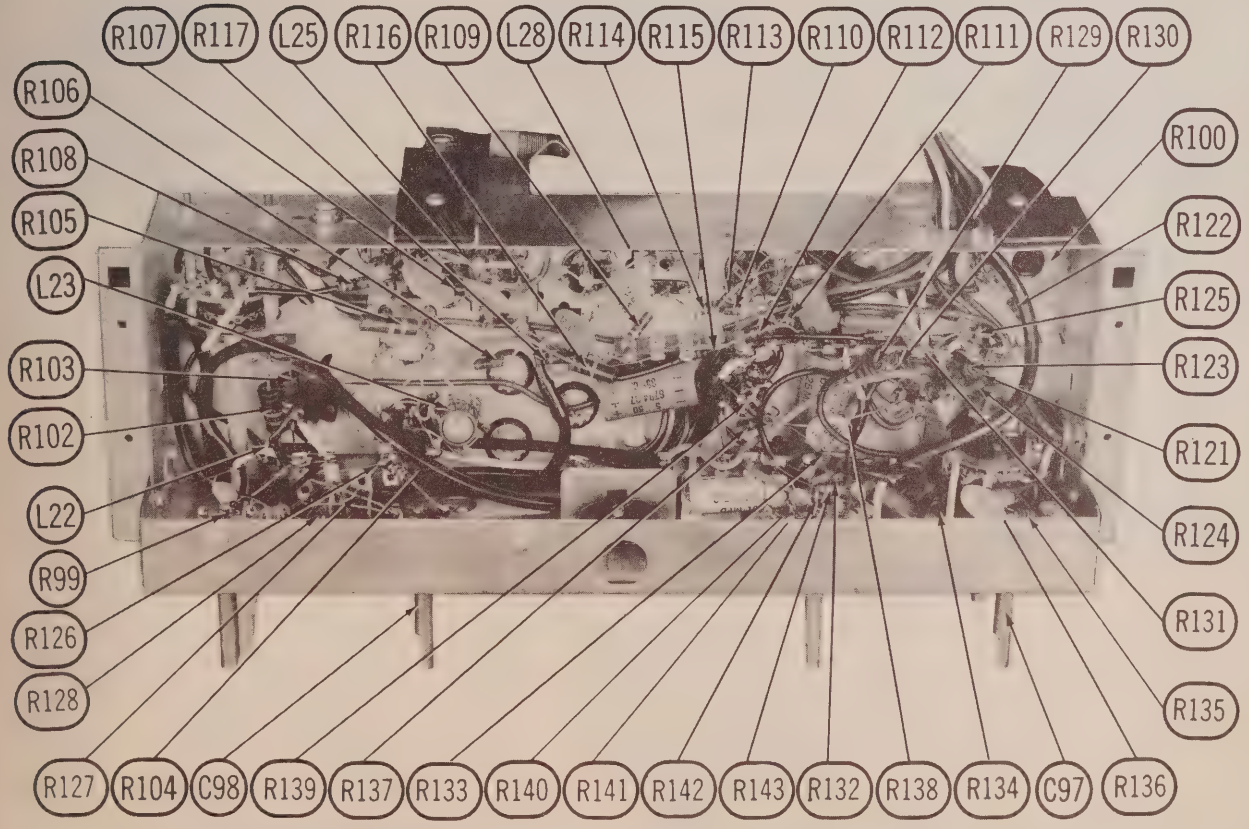
MAIN PRINTED BOARD - CAPACITOR IDENT.



MAIN PRINTED BOARD - RESISTOR, INDUCTOR IDENT.



FM-AM CHASSIS - CAPACITOR & ALIGNMENT IDENT.



FM -AM CHASSIS - RESISTOR, INDUCTOR IDENT.

TUNER ALIGNMENT INSTRUCTIONS #94E144-23, 25

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.

VHF OSCILLATOR ALIGNMENT

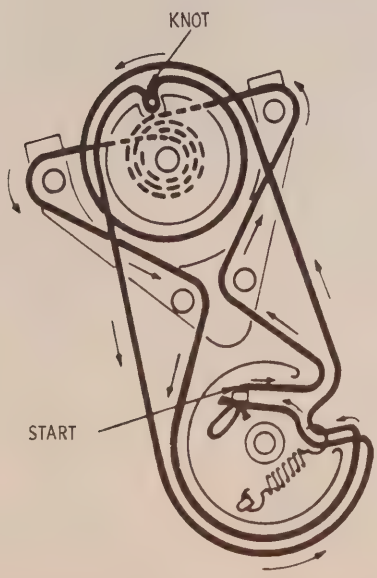
Turn the set on and allow 15 to 20 minutes warm-up period.
1. Set channel selector to the lowest channel operating in the area.
2. Set the fine tuning to the center of its range.
3. Set other controls for normal picture and sound.
4. Using a 1/8 inch non-metalic alignment tool, carefully adjust the oscillator slug for best picture and sound. (Note; this is not necessarily the point of loudest sound.) If two slugs are visible at the front of the tuner, adjust the one nearest the top of the tuner chassis. Repeat this procedure for the remaining stations, adjusting them in order of the channel number from the lowest to the highest.

VHF RF AND MIXER ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓣ. Low side to chassis.	A201, A202	Adjust for response similar to Fig. 201 with markers above 90%.
2.	"	"	85MC	83.25MC 87.75MC	6	"	A203	Adjust for response curve similar to Fig. 201. Adjust for maximum amplitude and flat-topped appearance with markers properly positioned.
3.	"	"	213MC	211.25MC 215.75MC	13	"		Check for response curve similar to Fig. 201. If markers fall below 70% on any high band channel, make compromise adjustment of A201 and A202 with channel switch set to that channel. If markers fall below 70% on any low band channel, make compromise adjustment of A203 with channel selector set to that channel. Check all other channels to see that they have not been seriously affected.
			207MC	205.25MC 209.75MC	12			
			201MC	199.25MC 203.75MC	11			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
			177MC	175.25MC 179.75MC	7			
			79MC	77.25MC 81.75MC	5			
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			

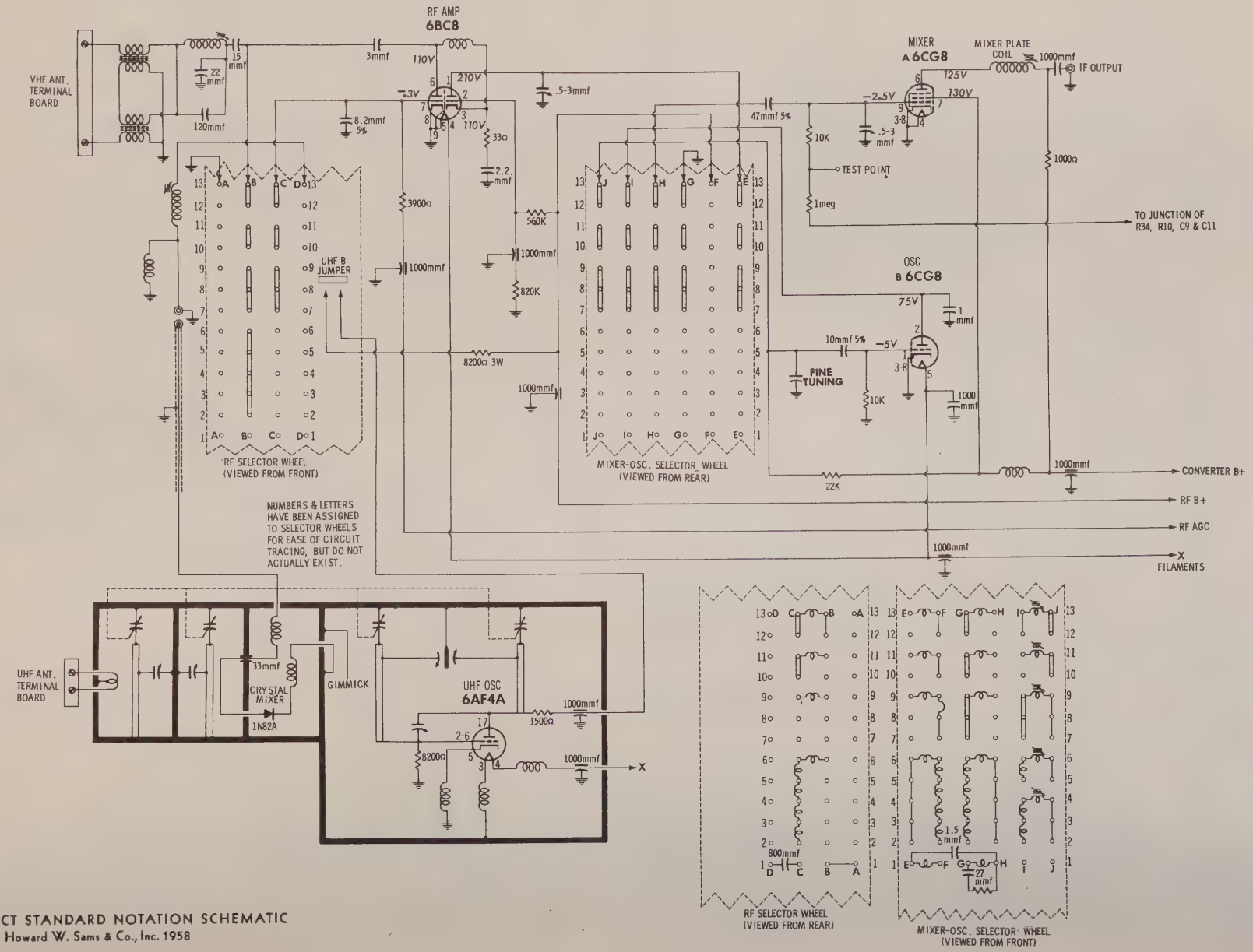
FIG. 201



DRIVE CORD FOR TUNER #94E144-23

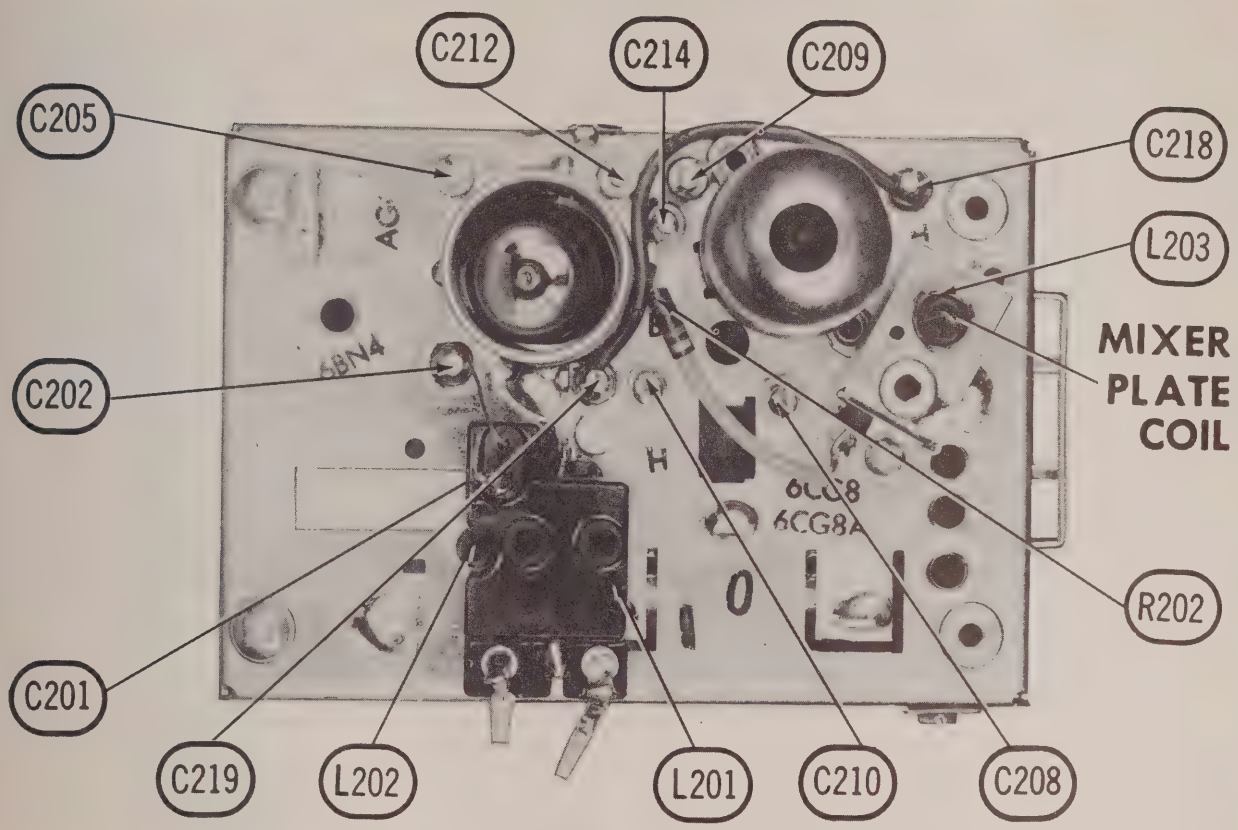
ADMIRAL CHASSIS 17L1, B, 17AL1, 17D1, 4S2B, 8F1, 8H1A

FOLDER 1

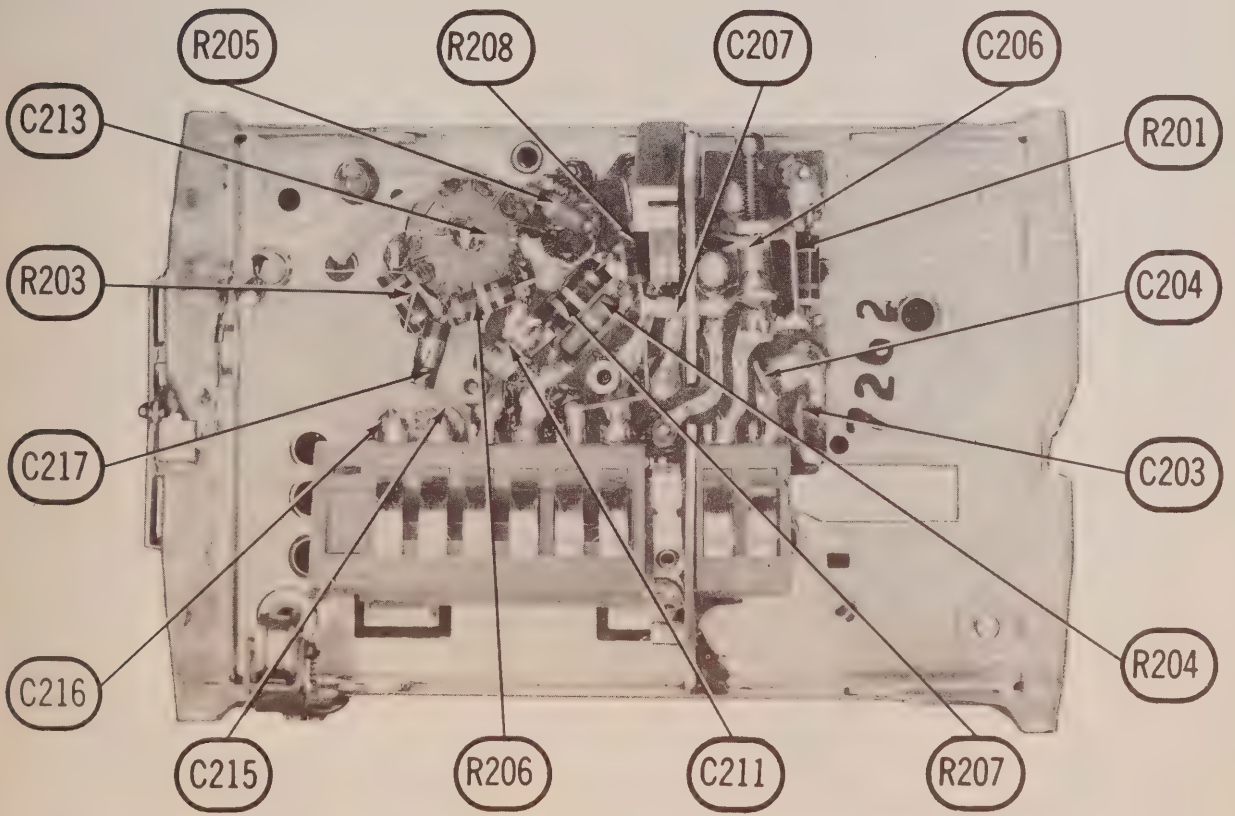


A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

UHF-VHF TUNER #94E144-23 & UHF TUNER #94D112-3



TUNER #94D151-4 TOP VIEW



TUNER #94D151-4 BOTTOM VIEW

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	150K	47Ω	0Ω	.1Ω	▲ 470Ω	▲ 470Ω	0Ω		
V2	6BZ6	120K	▲ 68Ω	.1Ω	0Ω	† 470Ω	† 470Ω	120K		
V3	6CB6	.1Ω	150Ω	.1Ω	0Ω	† 4500Ω	† 4500Ω	0Ω		
V4	6AW8A	0Ω	100K	† 47K	0Ω	.1Ω	• 18Ω	4000Ω	† 7900Ω	† 5600Ω
V5	6BU8	† 4000Ω	† 8200Ω	2meg	.1Ω	0Ω	† 12K	• † 410K	† 23K	† 4.7meg
V6	6DT6	18Ω	680Ω	0Ω	.1Ω	ǂ 650K	† 12K	560K		
V7	6CG7	• † 1.2meg	220K	• 160K	.1Ω	0Ω	† 12K	1.5meg	3000Ω	0Ω
V8	6DB5	† 18K	• 400Ω	2.2meg	.1Ω	0Ω	2.2meg	• 400Ω	NC	† 750Ω
V9	6CG7	† 5600Ω	5.2meg	1000Ω	.1Ω	0Ω	† 82K	110K	1000Ω	0Ω
V10	6CD6GA	TP	0Ω	0Ω	NC	470K	TP	.1Ω	† 10K	TOP CAP ǂ 9Ω
V11	6AU4GTA	NC	NC	INF	NC	† 0Ω	NC	.1Ω	0Ω	
V12	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ǂ 459Ω
V13	5V3	NC	¶ 20K	NC	14Ω	NC	15Ω	NC	¶ 20K	
V14	21CEP4A	0Ω	39K	ǂ 340K	ǂ 340K	NC	NC	• 190K	.1Ω	
V15	6BQ7A	†† 14K	1meg	0Ω	0Ω	.1Ω	†† 14K	0Ω	.1Ω	0Ω
V16	6AU6	▲ 2meg	1Ω	0Ω	.1Ω	▲♦ 15K	▲♦ 15K	1Ω		
V17	6BA6	1.6Ω	0Ω	0Ω	.1Ω	♦ 1100Ω	♦ 1100Ω	150Ω		
V18	6AU6	500K	0Ω	0Ω	.1Ω	♦ 1100Ω	♦ 1100Ω	0Ω		
V19	6AL5	7800Ω	8300Ω	.1Ω	0Ω	INF	0Ω	INF		
V20	6CD7/EM34	TP	230Ω	†† 1meg	2meg	†† 37K	†† 1meg	230Ω	0Ω	
V21	12AX7	†† 100K	1meg	12K	230Ω	230Ω	†† 3400Ω	80K	22K	230Ω
V22	6AV6	1meg	1000Ω	230Ω	230Ω	0Ω	0Ω	†† 220K		
V23	6SN7GTB	†† 330K	†† 50K	47K	300K	†† 330K	2000Ω	270Ω	270Ω	
V24	6V6GT	NC	270Ω	†† 185Ω	†† 100Ω	470K	NC	270Ω	270Ω	
V25	6V6GT	NC	270Ω	†† 183Ω	†† 100Ω	470K	NC	270Ω	270Ω	
V26	5Y3GT	NC	¶ 20K	NC	75Ω	NC	75Ω	NC	¶ 20K	
V201	6BN4	0Ω	4meg	0Ω	.1Ω	† 9200Ω	0Ω	4meg		
V202	6CG8	3900Ω	† 10K	0Ω	0Ω	.1Ω	† 7200Ω	† 16K	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

ALL MEASUREMENTS OF V15 THRU V22 TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.

¶ THIS READING MAY VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

▲ MEASURED FROM PIN 7 OF V2.

† MEASURED FROM 260V SOURCE.

ǂ MEASURED FROM PIN 3 OF V11.

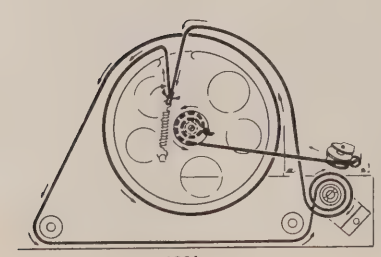
†† MEASURED FROM 335V SOURCE.

▲ MEASURED IN "AM" POSITION.

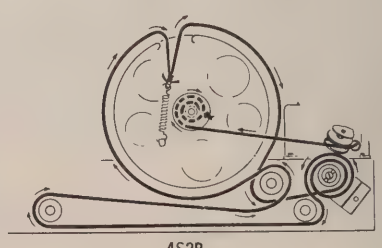
♦ MEASURED FROM 150V SOURCE.

NC NO CONNECTION.

TP TIE POINT.



4S2A



4S2B

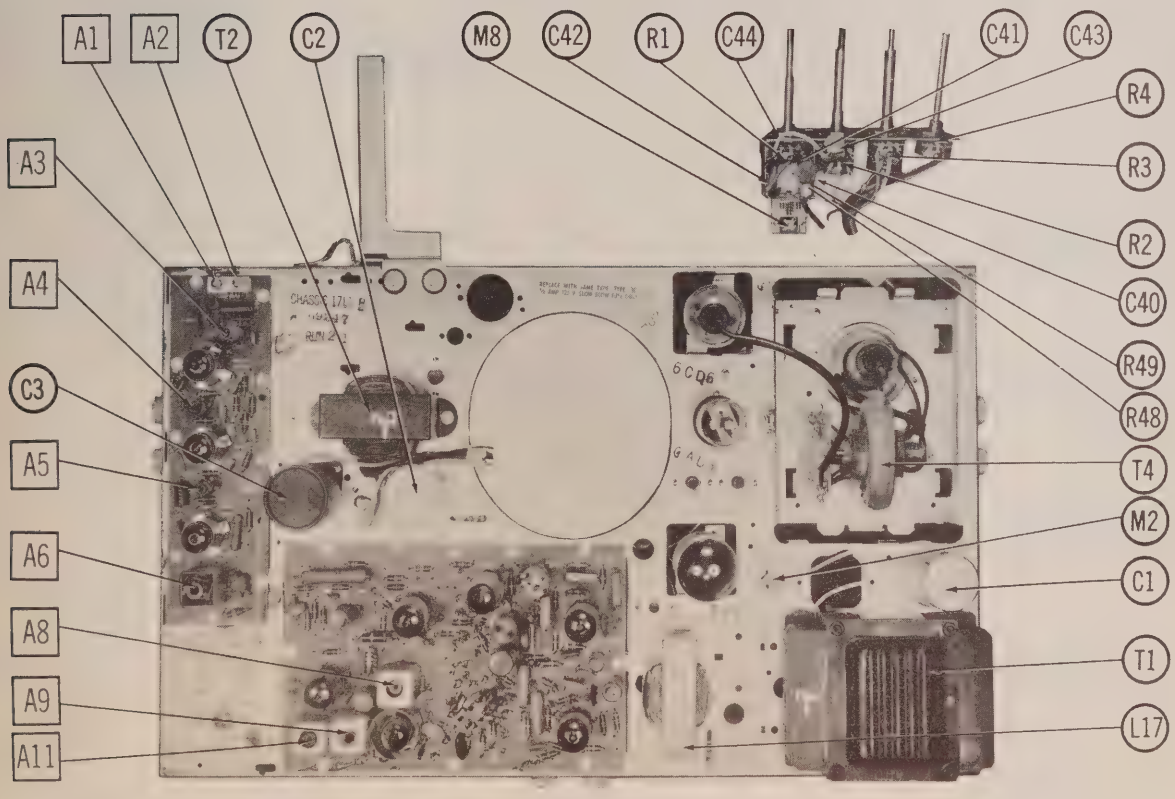
DIAL CORD STRINGING

ALIGNMENT INSTRUCTIONS (cont)

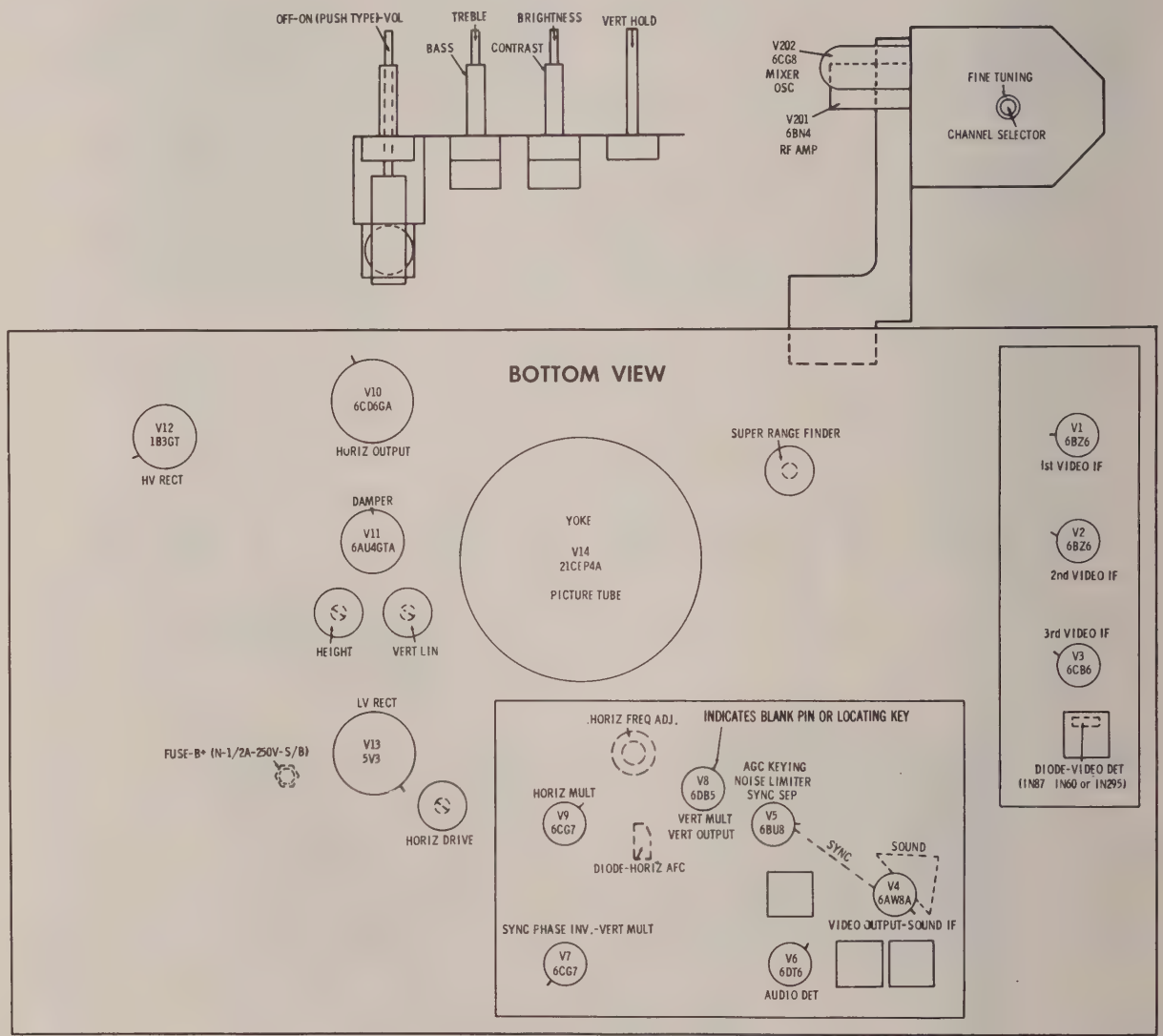
FM TUNER ALIGNMENT

Set the Volume fully counter clockwise and the Bass and Treble controls at mid-range.
Use only enough signal generator output to provide 1 volt above noise level for maximum adjustments.
Use non-metallic alignment tools.

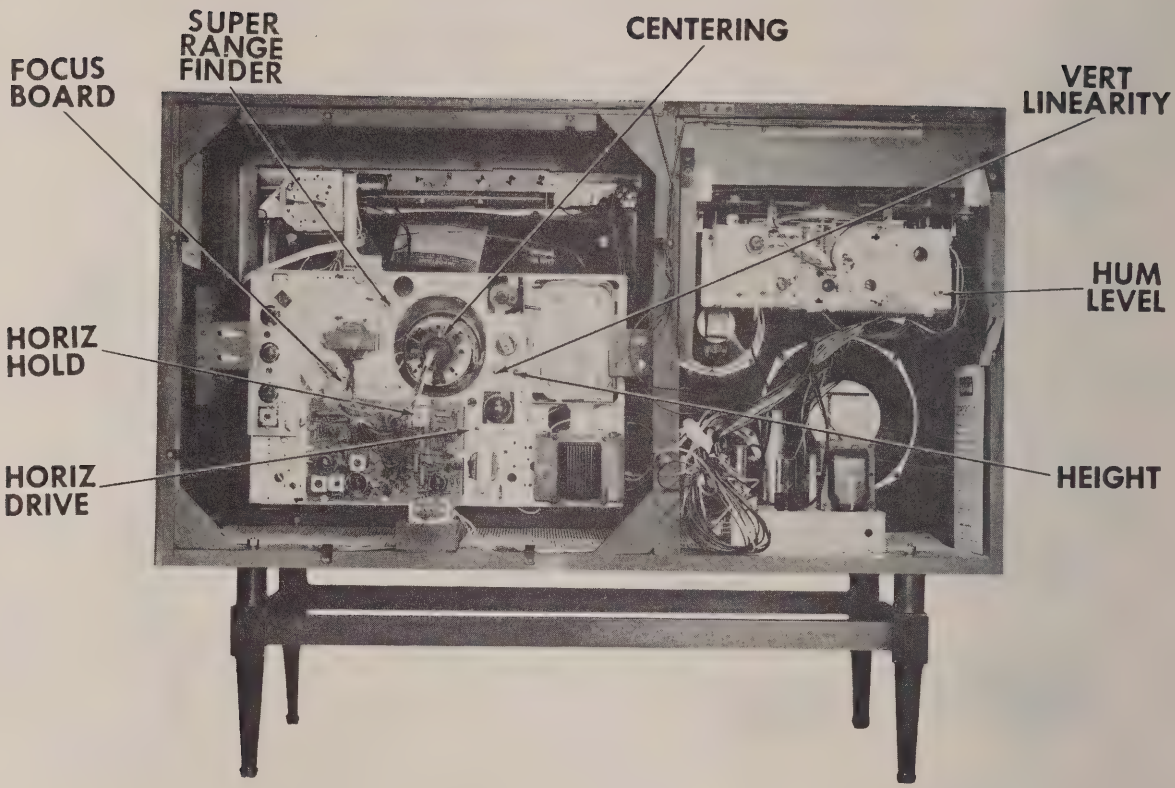
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
13.	Direct	Across FM antenna terminals.	10.7MC (Unmod)	FM	High End	DC probe to point Ⓒ. Common to chassis.	A18, A19, A20, A21, A22	Adjust for maximum deflection.
14.	"	"	"	"	"	DC probe to point Ⓓ. Common to chassis.	A23	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
15.	Two 150Ω Carbon Resistors	Across FM antenna terminals with 150Ω in each lead.	109MC	"	"	DC probe to point Ⓒ. Common to chassis.	A24	Loosen phillips screw holding FM tuner string until slack. Adjust A24 for maximum deflection. Take up slack in string and tighten screw.
16.	"	"	108.4MC	"	108.4MC	"		Tuner must be calibrated to 108.4MC. If necessary, loosen phillips screw holding FM tuner string and change tension SLIGHTLY until 108.4MC is received strongest. Tighten screw.
17.	"	"	96MC	"	Tune in 96MC signal	"	A25	Adjust for maximum deflection. while rocking the generator SLIGHTLY. A25 may have to be retouched for proper tracking after placing tuner back in cabinet.



CHASSIS—TOP VIEW



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Allow 15 minutes for receiver to warm-up. Tune in a station and set Brightness and Contrast controls for a normal picture.

2. Turn Horizontal Drive control (R8) fully clockwise. Foldover and/or compression will appear near the center of the picture. Slowly turn the Drive control counterclockwise until the foldover or compression disappears. This point will provide maximum width and brightness. Do not turn the Drive control too far counterclockwise as this shortens the life of the Horizontal Output tube.

3. Reduce the Contrast to MINIMUM. If the picture loses horizontal sync, adjust the Horizontal Hold to the point where the picture remains in sync and vertical lines do not bend near the top of the picture. If the Horizontal Hold requires adjustment, repeat steps 2 and 3.

SET 404 FOLDER 2
CORONADO MODELS
TV2-9485A, TV2-9486A

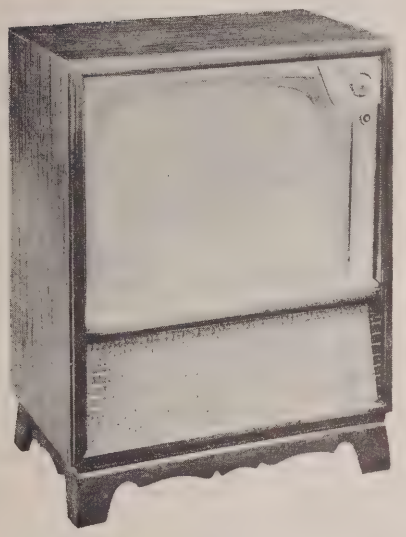
DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type knobs from the front. Remove 2 wood screws holding the knob escutcheon and remove remaining 4 knobs.
2. Remove 5 wood screws holding the rear cover. Remove the rear cover.
3. Loosen 2 wood screws holding the antenna terminal board.
4. Remove speaker leads.
5. Remove 2 wood screws holding the top chassis braces.
6. Remove 4 chassis bolts from the bottom.
7. Remove the chassis.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.



CORONADO MODELS
TV2-9485A, TV2-9486A

TRADE NAME	Coronado Models TV2-9485A, TV2-9486A
SUPPLIER	Gamble-Skogmo, Inc., 15 North 8th. St., Minneapolis, Minn.
TYPE SET	Television Receiver
TUBES	Eighteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 155 Watts, 1.4 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 5 wood screws from the trim strip at the top of the safety glass. Tilt the glass out at the top and lift up to remove.

SPECIAL ADJUSTMENTS

A. Focus
Adjust the beam alignment magnet on the neck of the picture tube for best focus.

B. Range
Observe the picture and advance the range control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

C. Sync Stab Adjustment
Tune in the strongest TV station operating in the area. Adjust controls for a normal picture. Adjust the sync stab control clockwise until bending or jitter occurs. Back off from this setting until the picture is stable. Check operation on all channels operating in the area and readjust if necessary.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate audio detector buzz, adjust the buzz control for MINIMUM buzz and maximum sound. (For location, see tube placement chart).

FUSE DEVICE

A circuit breaker is used for LV power supply protection and may be reset by depressing the reset button. (For location, see tube placement chart).

CENTERING

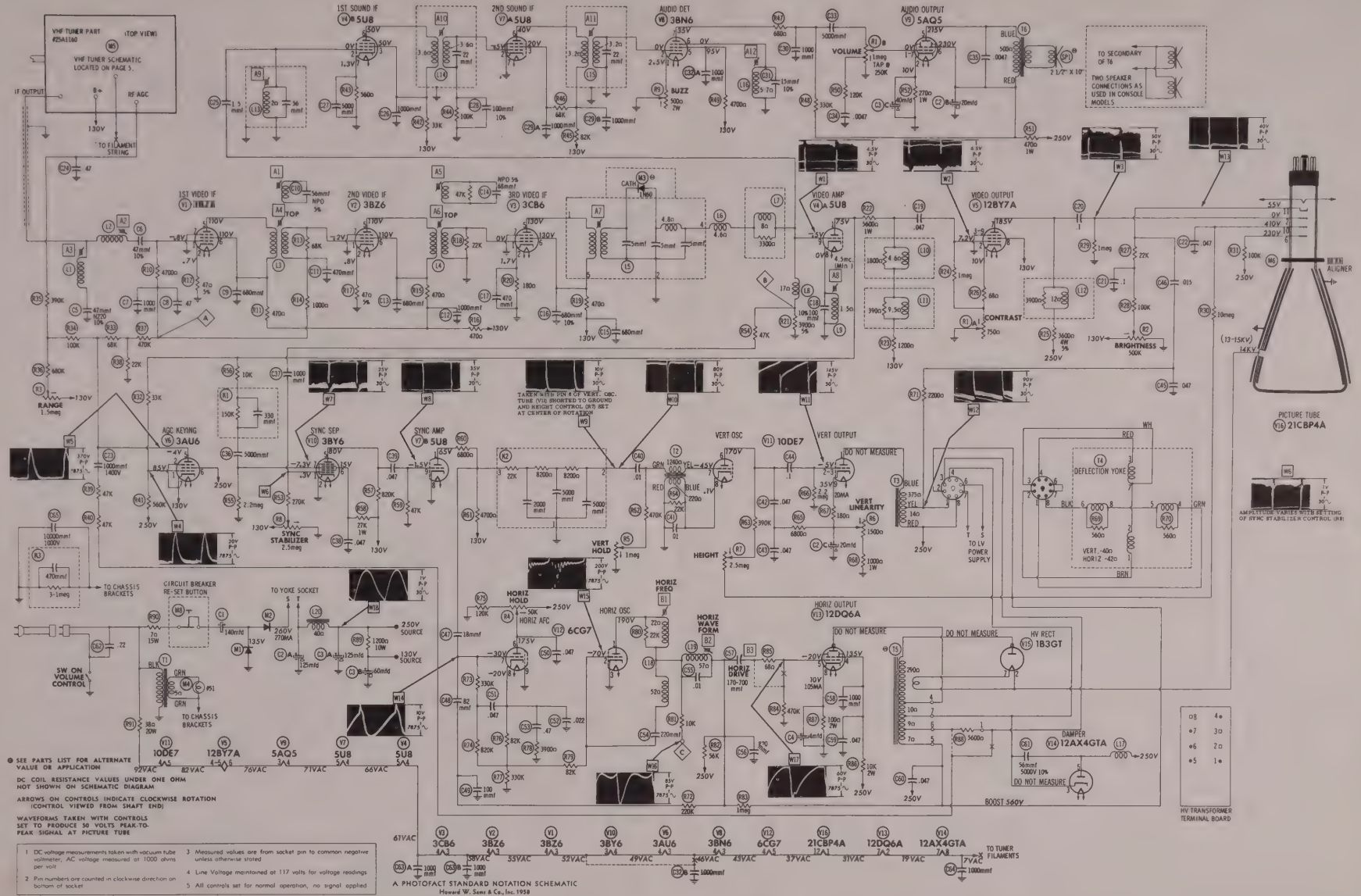
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana . Printed in U.S. of America

H427R

SET 404 FOLDER 2



● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE

1 DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt

2 Pin numbers are counted in clockwise direction on bottom of socket

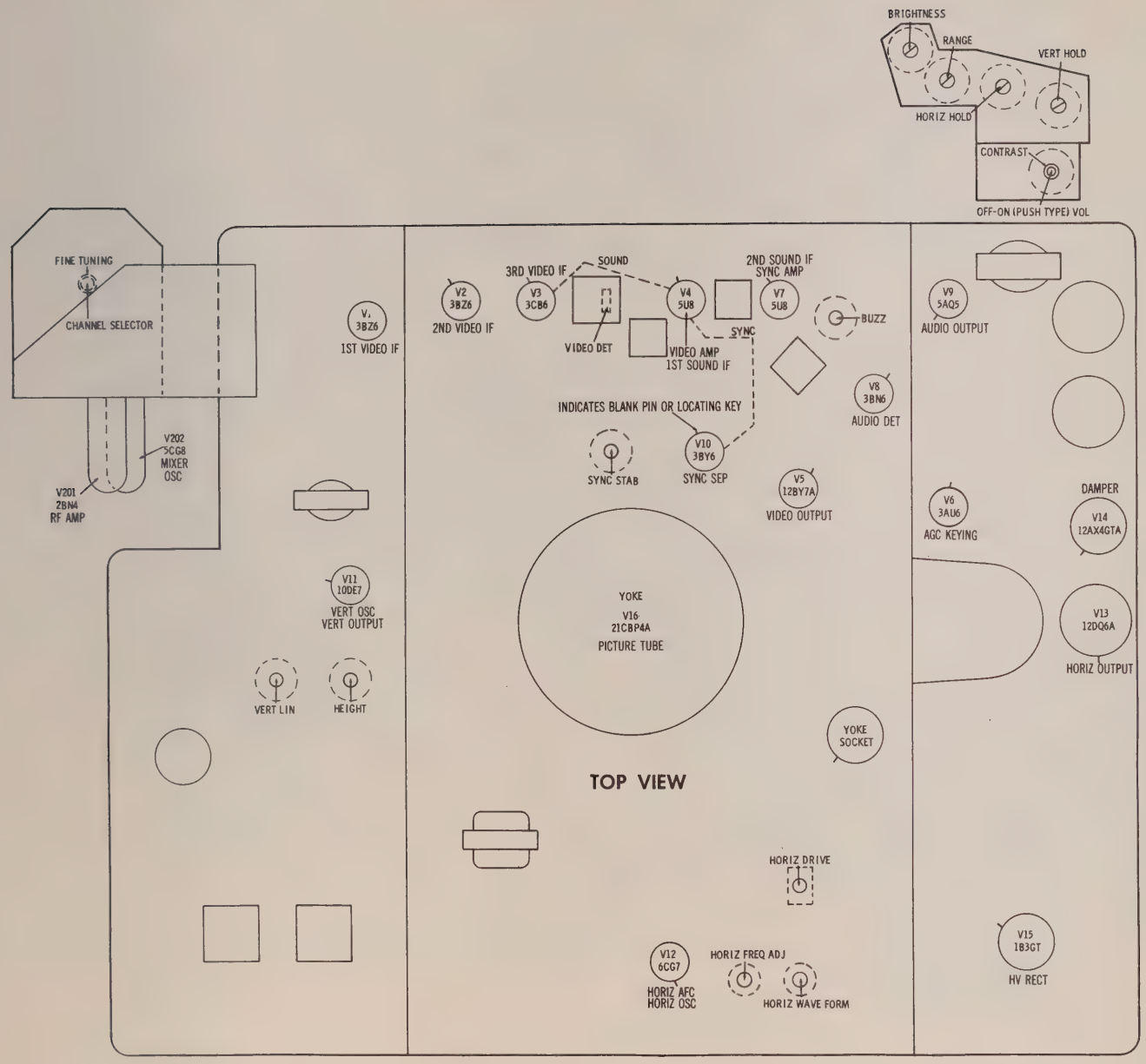
3 Measured values are from socket pin to common negative unless otherwise stated

4 Line Voltage maintained at 117 volts for voltage readings

5 All controls set for normal operation, no signal applied

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

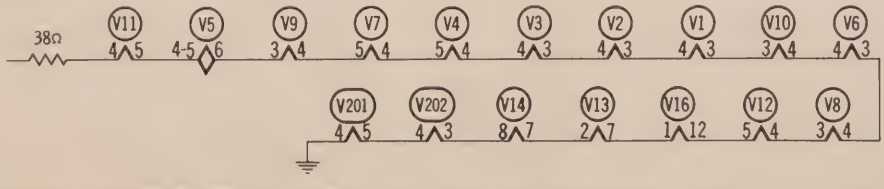
POWER SUPPLY FAILURE
No raster, no sound Circuit Breaker (M8), Rectifier (M1, M2)

SWEEP FAILURE
No raster, has sound V12, V13, V14, V15, V16
No vertical deflection V11
Poor vert. linearity or foldover V11
Poor horiz. linearity or foldover V12, V13, V14
Narrow picture V12, V13, V14, M1, M2
Vert. off freq. V11
Horiz. off freq. V12

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (M3)
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V5, V16
Has pic, no sound V4, V7, V8, V9
Overloaded picture V6

SYNC FAILURE
No vert. sync V10, V7
No horiz. sync V10, V7, V12
No vert. or horiz. sync V10, V7

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



CORONADO MODELS
TV2-9485A, TV2-9486A

FOLDER 2

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 1.5 volt bias supply to point Ⓐ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	44.0MC (10MC Swp)	47.25MC	Any non-interfering channel	Vert. Amp. thru det. probe (Fig. 1) to pin 5 (plate) of 3BZ6 (VI). Low side to chassis.	A1	Adjust to place marker in trap notch as in Fig. 2.
2.	"	"	"	41.25MC 45.75MC 47.25MC	"	"	A2, A3, & Mixer Plate Coil	Adjust for response similar to Fig. 2. Mixer plate coil and A2 affects the shape of the top. A3 is adjusted to position the 41.25MC marker. This adjustment must be made correctly or the sound rejection will not be correct. The 45.75MC marker must be exactly on peak.
3.	"	"	"	42.8MC	"	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis. DC probe of VTVM thru 10K to same point. Common to chassis. (Across video det. load).	A4	Increase bias at point A to 4.5 volts. Adjust sweep output for -2 volts DC at point Ⓑ. Adjust A4 for maximum amplitude at marker.
4.	"	"	"	41.25MC	"	"	A5	Adjust for MINIMUM amplitude at marker.
5.	"	"	"	45.3MC	"	"	A6	Adjust for maximum gain at marker.
6.	"	"	"	44.0MC	"	"	A7	"
7.	"	"	"	41.25MC 42.4MC 42.8MC 44.0MC 44.5MC 45.3MC 45.75MC 47.25MC	"	"		Check for response similar to Fig. 3 with markers as shown. If necessary, retouch A2 thru A7 for desired response. A7 controls the symmetry of the top, A6 controls position of the 45.75MC marker. A4 controls position of the 42.4MC marker (this slug will seldom need retouching. CAUTION: The position of 44.5MC marker is very critical (98%).

4.5MC TRAP ALIGNMENT

Use 0-10 volts AC scale on VTVM.
Set contrast control fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.005mfd	High side to pin 9 (grid) of 5U8 (V4). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	RF probe to pin 11 (cathode) of picture tube. Common to chassis.	A8	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT

Tune in a TV signal and reduce signal level at the antenna terminals by use of an attenuator or similar device until a hiss similar to super regeneration is heard in the sound.
Adjust A9, A10, A11 and A12 for maximum undistorted sound.
Adjust the buzz control (R9) for MINIMUM buzz.

TUNER ALINGMENT INSTRUCTIONS LOCATED ON PAGE 6.

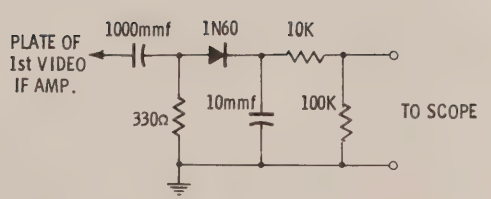


FIG.1

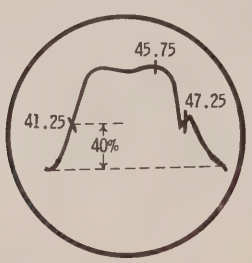


FIG.2

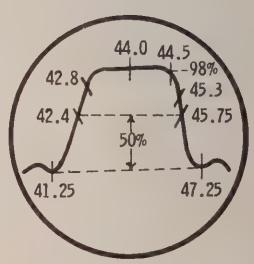
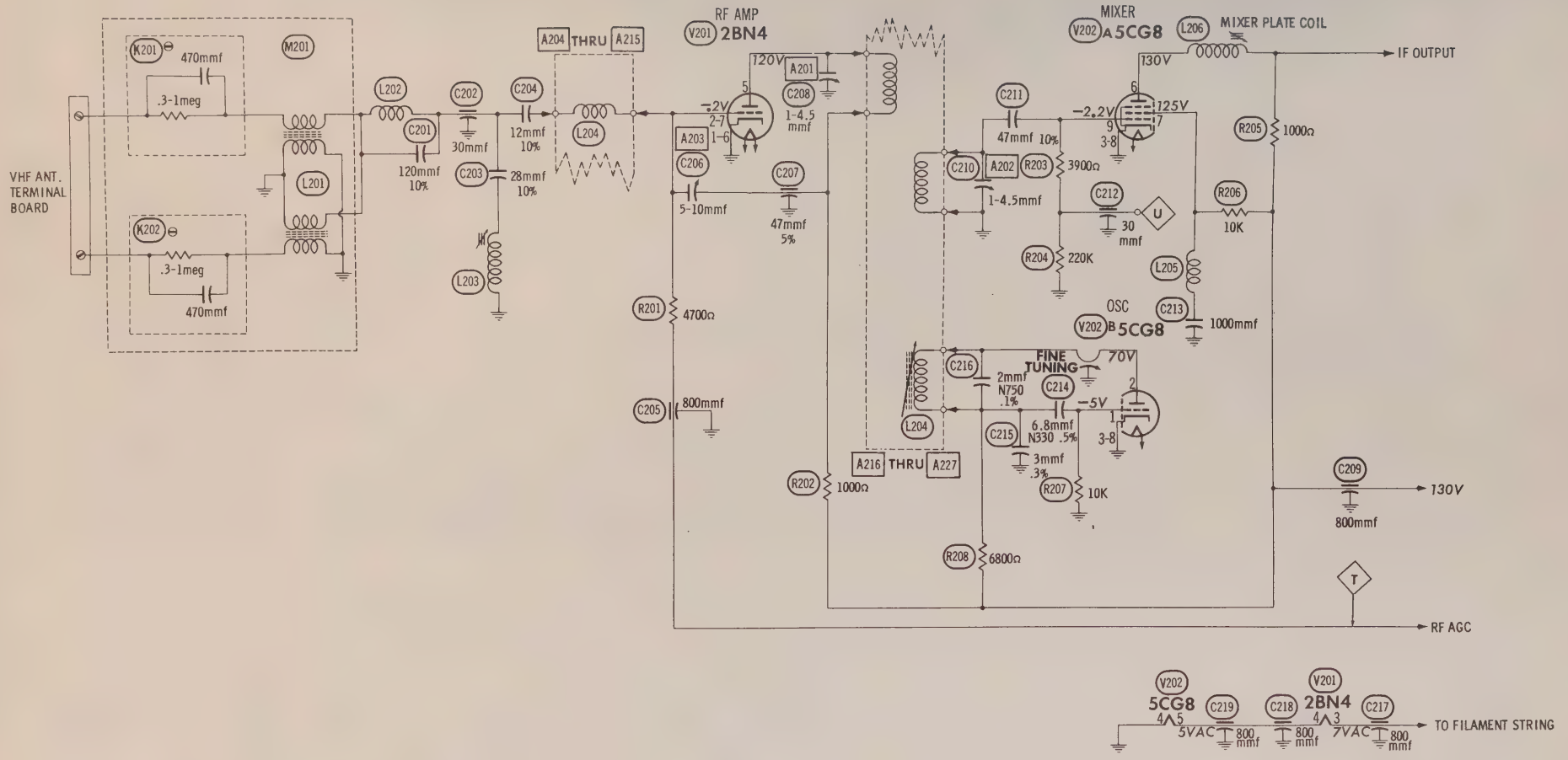


FIG.3



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF TUNER #25A1160

CORONADO MODELS TV2-9485A, TV2-9486A

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
Allow a 20 minute warm-up period for the receiver and test equipment.

RF AND MIXER ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point Ⓣ. Positive to chassis.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading. (Approximately 1.5 volts).
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A201, A202	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201.
2.	"	"	"	"	"	Vert. Amp. thru detector (Fig. 202) to plate of 1st. IF tube. Low side to chassis.	A203	Adjust A203 to obtain MINIMUM response on the scope.
3.	"	"	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A204	Adjust for maximum amplitude fof response similar to Fig. 201. Adjust by expanding or compressing coil turns.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	

OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading. (Approximately 4.5 volts).
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across video detector load.	A216	Adjust to place sound marker in trap notch as in Fig. 203. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

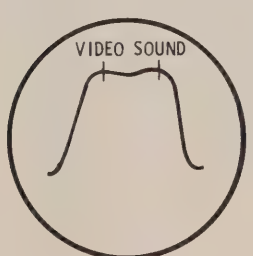


FIG.201

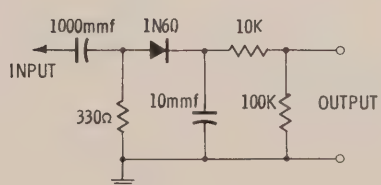


FIG.202

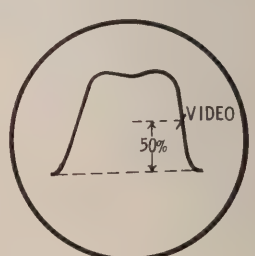
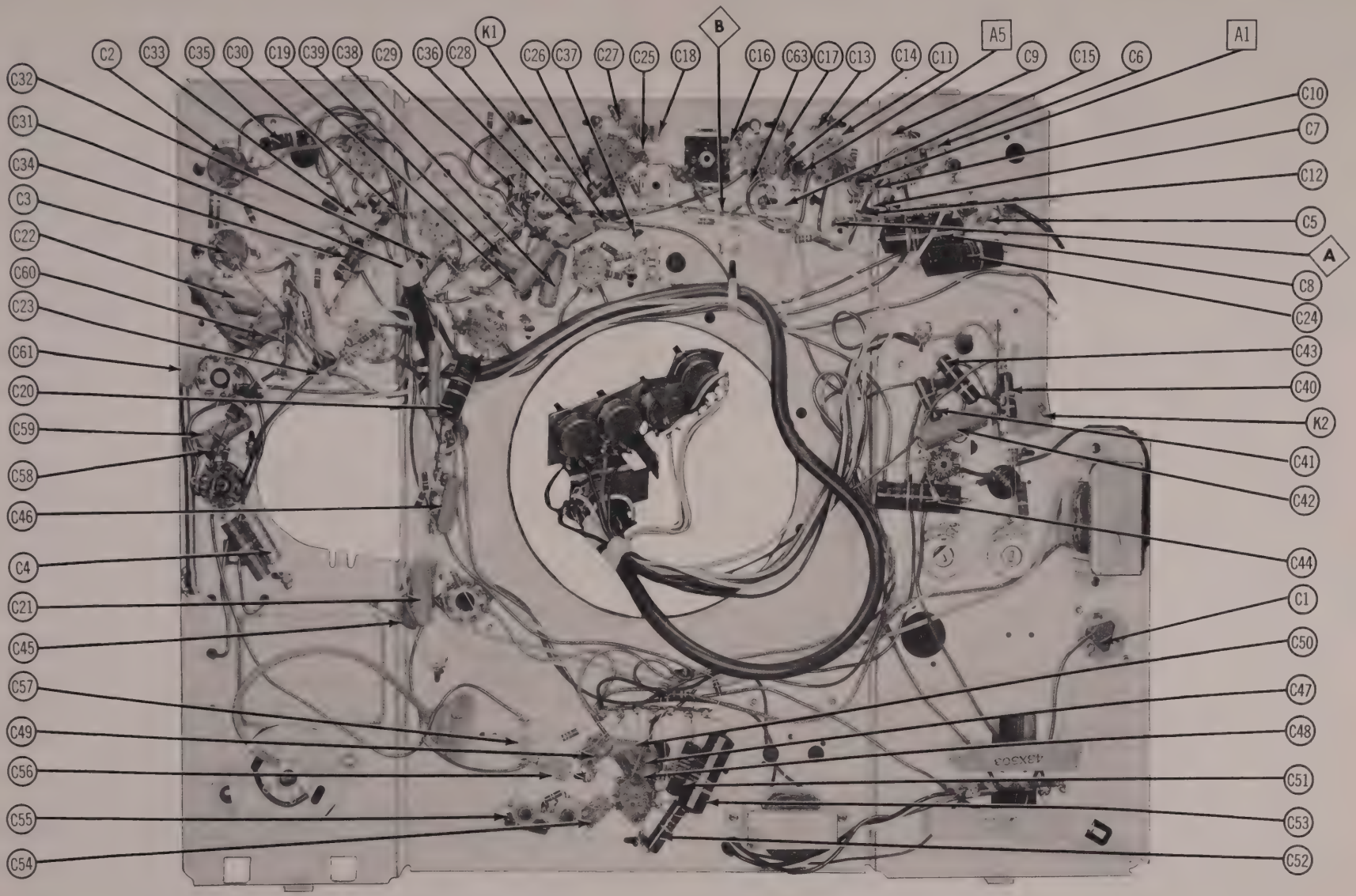
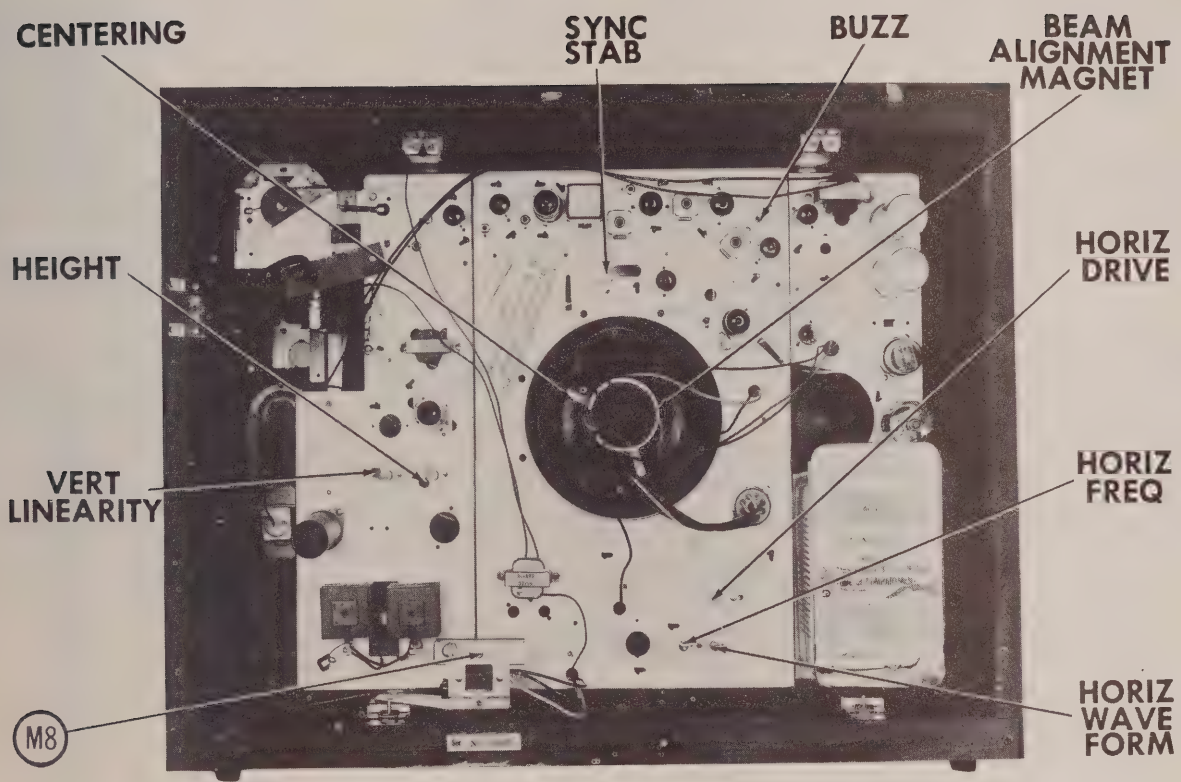


FIG.203



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Turn the horizontal hold control to the center of its range.

Connect a clip lead across the horizontal waveform coil (L19). Adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

Remove the clip lead from L19. Connect the vertical amplifier of the scope thru a low capacity probe to point Ⓒ. Low side to chassis.

Adjust the horizontal waveform slug (B2) for equal amplitudes of the round and sharp peaks of the waveform as shown in Fig. 4. While making this adjustment, keep the picture in sync with the horizontal hold control and B1.

Turn the horizontal drive trimmer (B3) clockwise as far as possible without the presence of vertical white lines or compression near the center of the raster.

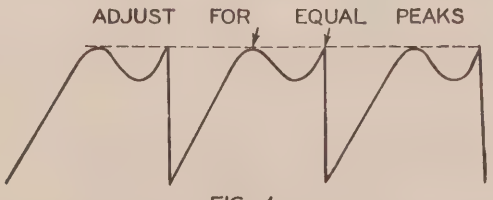


FIG. 4

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp.	3BZ6	
V2	2nd Video IF Amp	3BZ6	
V3	3rd Video IF Amp	3CB6	
V4	Video Amp 1st Sound IF Amp.	6U8	
V5	Video Output	13BY7A	
V6	AGC Keying	3AU6	
V7	2nd Sound IF Amp Sync Amp	6U8	

ITEM No	USE	TYPE	NOTES
V8	Audio Det.	3BN6	
V9	Audio Output	5AQ5	
V10	Sync Sep.	3BY5	
V11	Vert. Osc. -Vert Output	10DE7	
V12	Horiz. AFC-Horiz. Osc	8CG7	
V13	Horiz. Output	12DQ6A	
V14	Damper	12AX4GTA	
V15	HV Rectifier	1B3GT	

PICTURE TUBE

ITEM No	REPLACEMENT DATA: CORONADO PART No	GENERAL ELECTRIC PART No	RCA PART No	SYLVANIA PART No	NOTES
V16	21CBP4A		21CBP4-A ①	21CBP4A ②	① "Silverama" ② ② "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING: CAP	VOLT	CORONADO PART No	AEROVOX PART No.	CORNELL-DUBILIER PART No	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No.
C1	140	150	45X421	AFH51-33	XA0261	FP117	TMS-24	T-055	TVL-1428
C2A	115	300	45X431	AFH4-03-60	XC0733 2	FP318		Q-222 2	*R3378
B	20	300				TC36		MT-0520	
C	20	50							
C3A	115	300	45X420	AFH3-99-82	XC0733.4	FP420.76	TMT-26	T-115	TVL-3574.6
B	60	300				TC65		MT-0550	
C	60	50							
C4	4	50	45X418	PRS150V4	BBR4-50	TC30	TD-4-50	MT-0504	TE-1302.1

* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	VOLT	CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No	SPRAGUE PART No.	NOTES
C5	47		47X603							N330 10%
C6	47		47X603	NPO-S1 47	DTZ-47	CTA8Q47C	TCO-47		5GA-Q47	10%
C7	1000		80X1	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C8	47	200	RCP10M2474M	P288N-47		CUB42P47		GEM-2047	2TM-P47	
C9	680		80X3	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C10	680						TCO-56			NPO 5%
C11	470		80X4	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C12	1000		80X1	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C13	680		80X3	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C14	68				DTZ-68		ED-68			NPO 5%
C15	680		80X3	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C16	680		80X15				ED-680			10%
C17	470		80X4	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C18	100		47X604	NPO-S1 100	DE-101	CTA8TIC	GP-100	ZT-531	5TCC-T1	10%
C19	.047	400	RCP10M4473M	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C20	1	400	RCP10M4104M	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C21	.1	200	RCP10M2104M	P288N-1	DF-104	CUB2P1		GEM-401	2TM-P1	
C22	.047	600	RCP10M6473M	P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C23	1000	1400	47X753	HVD-15-100	DD30-102	HVB1E1M	ED25-1000	DC5221	20GA-D1	
C24	.47	200	RCP10M2474M	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C25	1.5		47X584	NPO-S1 1.5	TCZ-1R5	CTA6V15C	TCO-15	ZT-5515	5TCCB-V15	
C26	1000		80X1	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C27	5000		47X507	BPD-005	DD-502	BYA10D5	GP-5000	DC525	5HK-D5	
C28	100		47X604	NPO-S1 100	DE-101	CTA6TIC	GP-100	ZT-531	5TCC-T1	10%
C28A	1000		80X3	BPD-2X001	DD2-102	BYC5D1	ED2-001	DCD-521	5HK-2D1	
B	1000									
C30	1000		80X1	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C31	15		47X672	NPO-D1 15	DD-150	C10G15C	ED-15		5TCC-Q15	10%
C32A	1000		80X3	BPD-2X001	DD2-102	BYC5D01	ED2-001	DCD-521	5HK-2D1	
B	1000									
C33	5000		47X507	BPD-005	DD-502	BYA10D5	GP-5000	DC525	5HK-D5	
C34	.0047	600	RCP10M6472M	P488N-0047	DE-472	CUB4D47	GP-4700	GEM-6247	6TM-D47	
C35	.0047	600	RCP10M6472M	P688N-0047	DE-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C36	5000		47X507	BPD-005	DD-502	BYA10D5	GP-5000	DC525	5HK-D5	
C37	1000		80X1	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C38	.047	400	RCP10M4473M	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C39	.047	400	RCP10M4473M	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C40	01	400	RCP10M4103M	P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C41	01	400	RCP10M4103M	P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C42	.047	600	RCP10M6473M	P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C43	.047	200	RCP10M2473M	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C44	.1	600	RCP10M6104M	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C45	.047	600	RCP10M6473M	P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C46	015	600	RCP10M6153M	P688N-015		CUB0615		GEM-6115	6TM-S15	
C47	18		RCM20B180K	1468-00018	DD-180	5W5Q18	CY10C180K		MS-418	
C48	82		RCM20B820K	1468-00082	DD-820	5W5Q82	CY10C820J		MS-482	
C49	100		RCM20B101K	1468-0001	DD-101	5W5T1	CY10C101J	MC235	MS-31	
C50	.047	400	RCP10M4473M	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C51	.047	200	RCP10M2473M	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C52	.022	200	RCP10M2223M	P288N-022		CUB4S22		GEM-4122	2TM-S22	
C53	.47	200	RCP10M2474M	P288N-47		CUB2S47		GEM-2047	2TM-P47	
C54	220		RCM20B221K	1468-00022	DD-221	5W5T22	CY10C221K		MS-322	
C55	01	400	RCP10M4103M	P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C56	820			1468-00082	DD-821	1W5T82	CY15C821K		MS-382	
C57	170-700		17A271							
C58	1000		80X1	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C59	.047	400	RCP10M4473M	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C60	.047	400	RCP10M4473M	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C61	56	5000	47X755							10%
C62	22	400	RCP10M4224M	P488N-22		CUB4P22		GEM-4022	4TM-P22	
C63A	1000		80X3	BPD-2X001	DD2-102	BYC5D01	ED2-001	DCD521	5HK-2D1	
B	1000									
C64	1000		80X1	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C65	10000	1000	47X815		DD-103	BYA10S1M			10HKB-S1	

CONTROLS

ITEM No	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: CORONADO PART No.	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No	INSTALLATION NOTES
R1A	750Ω	½	78X32		RTV-649		UE1178	Contrast Volume-tap ② 250K
B	1meg				Not Req.			
C	Switch				Not Req.			
R2A	500K	½	40X426	AB-59	A47-500K-S	Q11-133	U50	Brightness
B	Shaft			AK-8 *	RS-3/16 *	NQ *	DS-37	
R3A	1.5meg	½	40X430	AB-742	A47-1.5meg-S	Q11-136	U156	Range
B	Shaft			AK-8 *	RS-3/16 *	NQ *	DS-37	
R4A	50K	½	40X427	AB-31	A47-50K-S	Q11-148	U35	Horiz. Hold
B	Shaft			AK-8 *	RS-3/16	NQ *	DS-37	
R5A	1meg	½	40X428	AB-59	A47-1meg-S	Q11-137	U54	Vert. Hold
B	Shaft			AK-8 *	RS-3/16 *	NQ *	DS-37	
R6A	1500Ω	½	40X399	AB-5	A47-1500S	Q11-109	PTA152L	Vert. Lin.
B	Shaft			AK-19	RN-3	TQ	PTA26L	
R7A	2.5meg	½	40X396	AB-83	A47-2.5meg-S	Q11-239	PTA26L	Height
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R8A	2.5meg	½	40X396	AB-83	A47-2.5meg-S	Q11-239	PTA26L	Sync Stabilizer
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R9	500Ω	4(WW)	40X397		39-500		FL-500	Buzz

* File shaft flat as required.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING: OHMS	WATT	CORONADO PART No.	NOTES
R10	4700Ω		B64472	
R11	470Ω		B85471	
R12	47Ω 5%		B83470	
R13	68K		B84683	
R14	1000Ω		B85102	
R15	470Ω		B85471	
R16	470Ω		B85471	
R17	47Ω 5%		B83470	
R18	22K		B84223	
R19	470Ω		B85471	
R20	180Ω		B84181	
R21	3900Ω 5%		B83392	
R22	5600Ω	1	C84562	
R23	1200Ω		B84122	
R24	1meg		B84105	
R25	3600Ω 5%	4	43X331	
R26	68Ω		B84680	
R27	22K		B84223	
R28	100K		B85104	
R29	1meg		B84105	
R30	10meg		B85106	
R31	100K		B85104	
R32	33K		B84333	
R33	68K		B84683	
R34	100K		B84104	
R35	390K		B84394	
R36	680K		B84684	
R37	470K		B84474	
R38	22K		B84223	
R39	47K		B84473	
R40	47K		B84473	
R41	560K		B84564	
R42	33K		B84333	
R43	580Ω		B84581	
R44	100K		B85104	
R45	82K		B84823	
R46	68K		B84683	
R47	680Ω		B84681	
R48	330K		B84334	
R49	4700Ω		B84472	
R50	120K		B84124	

ITEM No.	RATING: OHMS	WATT	CORONADO PART No.	NOTES
R51	470Ω		C85471	
R52	270Ω	1	C84271	
R53	270K		B84274	
R54	47K		B84473	
R55	2.2meg		B84225	
R56	10K		B84103	
R57	820K		B84824	
R58	27K	1	C84273	
R59	47K		B84473	
R60	6800Ω		B84682	
R61	4700Ω		B84472	
R62	470K		B84474	
R63	390K		B84394	
R64	22K		B84223	
R65	6800Ω		B84682	
R66	2.2meg		B84225	
R67	180Ω		B84181	
R68	1000Ω	1	C84102	
R69	560Ω		B84564	
R70	560Ω			
R71	2200Ω		B84222	
R72	220K		B84224	
R73	330K		B84334	
R74	820K		B84824	
R75	120K		B84124	
R76	82K		B84823	
R77	330K		B84334	
R78	3900Ω		B84392	
R79	82K		B84823	
R80	22K		B84223	
R81	10K		B85103	
R82	56K		B84563	
R83	1meg		B84105	
R84	470K		B84474	
R85	68Ω		B85680	
R86	10K	2	D84103	
R87	100Ω	2	D84101	
R88	5600Ω		B84562	
R89	1200Ω	10	43X396	
R90	7Ω	15	43X303	
R91	35Ω	20	43X304	

TRANSFORMER (FILAMENT)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA: CORONADO PART No.	Halldorson PART No.	Merit PART No	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V	4.2V ②	.15A	[illegible]		P-2964 ①		P-8467 ①	21F21 ①	F-13X ①

① Drill new mounting hole.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: CORONADO PART No.	Halldorson PART No.	Merit PART No	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Osc.	[illegible]	B8702	A-3003	V405	A-8125	26A03	A-97X	
T3	Vert. Output	51X188A	Z1900 ①	A-3036	V307	VO-100	25S73	A-118X	
			②	①③	①③	③	③	③	
T4A	Yoke-Horiz.(24.5MH)	9A-2403	DF807	MDF-92	Y90F19/43	DY-16A	Y-16	Y-41 &	
B	(90°)-Vert.(39MH)	③	③④	③④	③④	③④	③④	WW3 ④	
M7	Rear Cover & Centering Device	2A435						YC-1	
	Yoke Clamp	303X81						CL-1	
	Rubber Strip	8X247							
T5	Horiz. Output	53X361B		HVO-182		HO-283 *		D-95 *§	
	Alt. Horiz. Output	53X362		HVO-182		HO-283 *		D-95 *§	

① Connect as autoformer.
② Use 9 to 1 turns ratio.
③ Drill new mounting hole(s).
④ Includes resistors (R69, R70).
⑤ Use original rear cover, centering device and horizontal damping network.
⑥ Connect same as original.
§ This part may be superceded by Parts Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
4				6		5
7				3		4
6				2		YCT
5				1		1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: CORONADO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T6	4700Ω	3-4Ω	51X176	Z1107	A-2930	AU-601	A-3877	26B51	S-3X	

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: CORONADO PART No.	QUAM PART No.	NOTES
SP1	2½" x 10"	PM	3-4Ω	12A549 ①		① Used in table models
	4"	PM		12A547 ②		② Used in console models
	8"	PM		12A548 ③		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: CORONADO PART No	Meissner PART No.	Merit PART No.	Miller PART No	Ram PART No.	NOTES
L1	39MC Trap Coil	[illegible]			4202		
L2	1st. Video IF	9A2365	17-4534	TV-131	4202	VF-4	
L3	2nd. Video IF	9A2363	17-4536		6232		Includes 47.25MC Trap
L4	3rd. Video IF	9A2364	17-4535		6421		Includes 41.25MC Trap
L5	4th. Video IF	9A2370	17-4514				Includes M3
L6	Resonant Choke	[illegible]					30 Microhenries
L7	Series Peaking Coil	36A40	19-4073 *	TV-185 *	6172 *	VP-2 *	75 Microhenries, wound on 3300Ω resistor
L8	Shunt Peaking Coil	36A39	19-3250	TV-198	8130	VP-6	270 Microhenries
L9	4.5MC Trap	9A2362			4305		
L10	Shunt Peaking Coil	36A42					30 Microhenries, wound on 1800Ω resistor
L11	Shunt Peaking Coil	36A41	19-3100 ▲	TV-194 ▲	8112 ▲	VP-3 ▲	100 Microhenries, wound on 3900Ω resistor
L12	Shunt Peaking Coil	36A43	19-3160 •	TV-196 •	6120 •		150 Microhenries, wound on 3900Ω resistor
L13	1st. Sound IF	[illegible]	17-1026	TV-154	1470-A		
L14	2nd. Sound IF	[illegible]	17-3495	TV-113	6203	SF-2	
L15	3rd. Sound IF	9A2368	17-3495	TV-113	6203	SF-2	
L16	Quadrature Coil	9A2367	20-1005	TV-121	1480		
L17	R.F. Choke	9A2380	19-1001	BC-562	4604		1.5 Microhenries

* Parallel with 3300Ω resistor.
▲ Parallel with 3900Ω resistor.
• Parallel with 3900Ω resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.: PRI.	SEC.	REPLACEMENT DATA: CORONADO PART No.	Meissner PART No.	Merit PART No.	Miller PART No	Ram PART No	Thordarson PART No.	NOTES
L18	74Ω *		9A2371		TV-165	6211 ▲		HS-7	Horiz. Freq.
L19	57Ω		[illegible]			6215		HS-5 ▲	Horiz. Waveform

* Tapped ② 52Ω. ▲ Enlarge mounting hole.

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES	INDUCTANCE @ CURRENT 1000 ~	REPLACEMENT DATA: CORONADO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L20	.270A	40Ω	1 Hy.	52X95-5	C5037 ①	C-3996 ①		C-2336 ①	28C44 ①	C-24X

① Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CORONADO PART No.	REPLACEMENT DATA	
K1	Sync Sep. Coupling	330mmf, 150K	76X13	Sprague	PRC-5
K2	Vert. Integrator	2000mmf, 5000mmf, 5000mmf, 22K, 8200Ω, 8200Ω	76X7	Aerovox Centralab Erie Cornell-Dubilier Sprague	PA-110 PC-104 1405-01 115TM1 V-1
K3	Bracket Isolation	470mmf, .3-1meg	76X11	Centralab Sprague	RC-471 R-9177

RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: CORONADO PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.270A	66X17 ①	1023A ①	1N1007 ②	RS3505L ①	350A ① M500 ②	① Selenium type. ② Germanium type.
M2	.270A	66X17 ①	1023A ①	1N1007 ②	RS3505L ①	350A ② M500 ②	③ Silicon type.

CORONADO MODELS TV2-9485A, TV2-9486A

FOLDER 2

PARTS LIST & DESCRIPTION (continued)

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		CORONADO PART No.	CBS PART No.	SYLVANIA PART No.	
M3	1N60 *		1N60	1N60	Video Detector (Pigtail)

* A CK706A may be used in some versions.

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M4	Pilot Light		#51
M5	Tuner	25A1160	VHF (Standard Coil #NAS-4145)
	Tuner	25A1159	UHF (Standard Coil #NEUFS-103)
M6	Magnet	2A476	Beam Alignment
M7	Centering Device	2A435	Includes yoke rear cover
M8	Circuit Breaker	2A475	

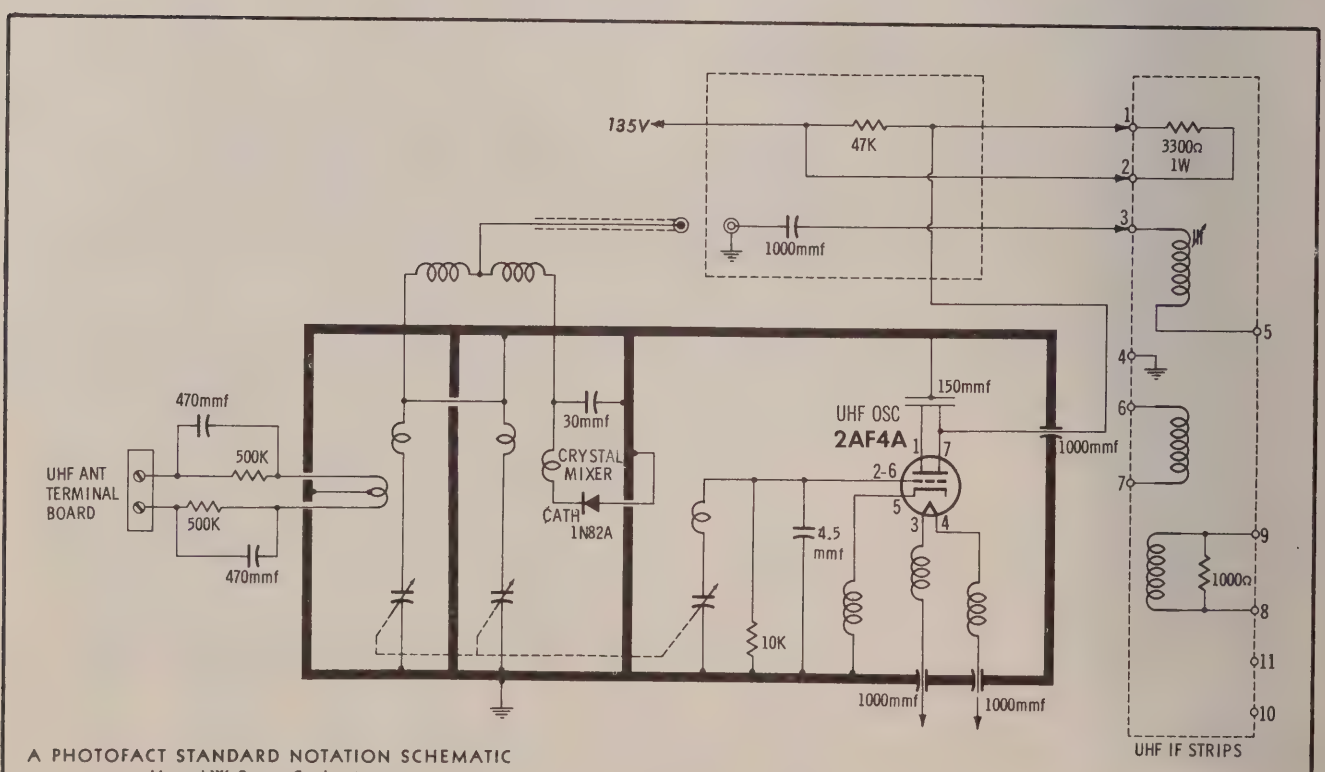
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	17X194-1	
Mask	S-38A382	Table Models
Mask	S-38A375	Console Models
Escutcheon	4X1315-2	
Drive Chain	34X602	
Knob	10A861-1	Secondary Controls
Knob	10A895-1	Fine Tuning
Knob	10A899-1	Channel Selector
Knob	10A896-1	Contrast
Knob	10A897-1	Volume
Knob	10A893-2	UHF Tuning
Knob	10A894-2	UHF Indicator

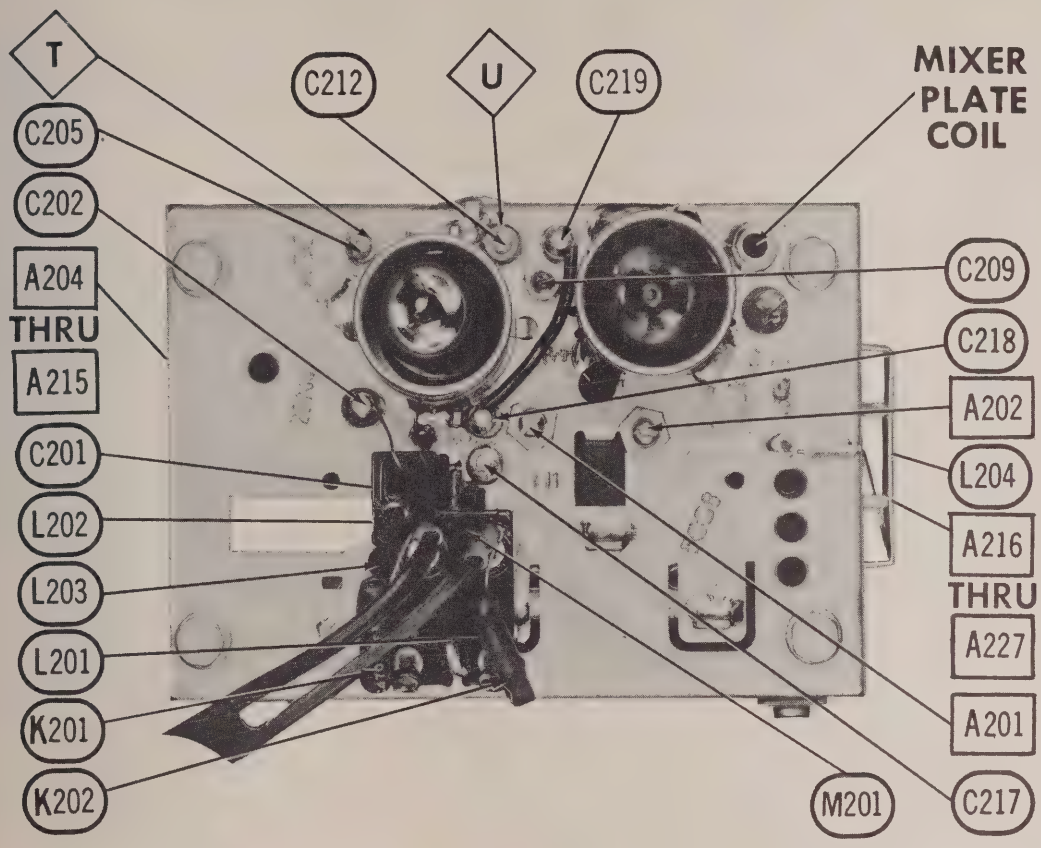
WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

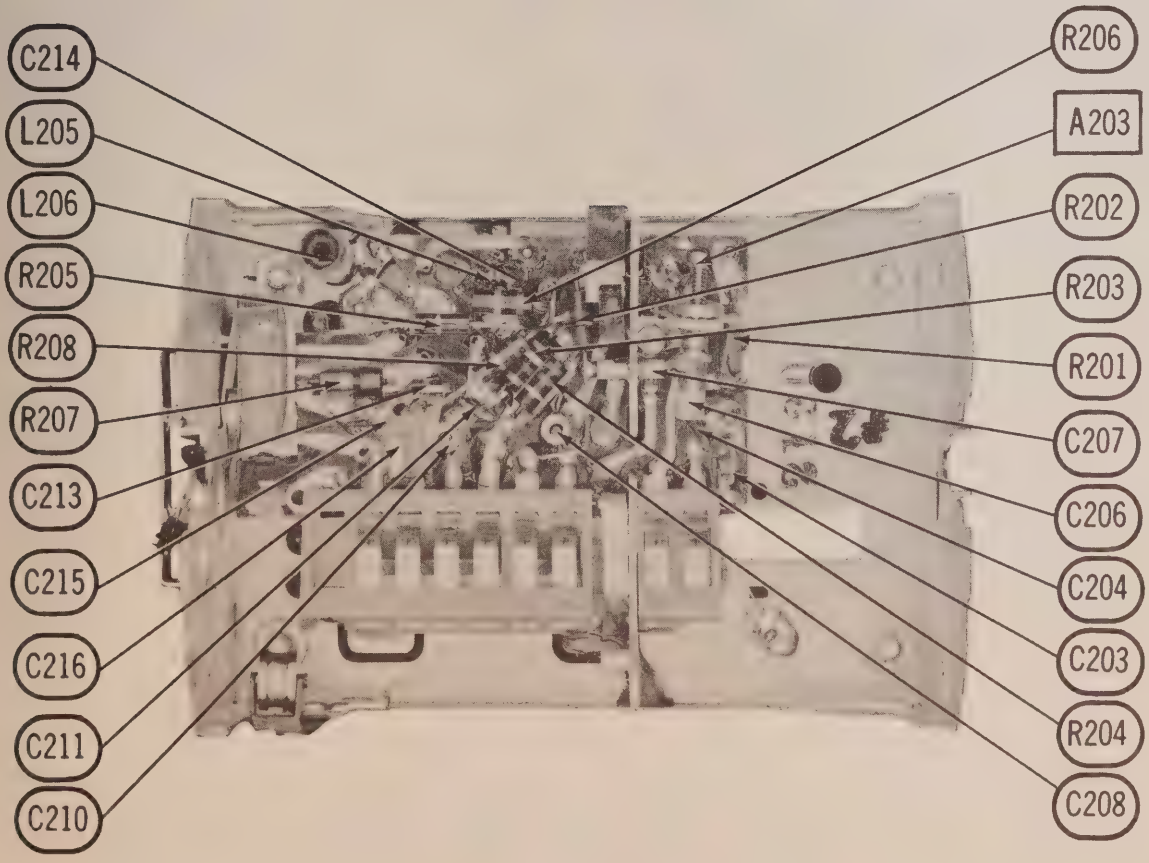


A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

UHF TUNER # 25A1159



TUNER TOP VIEW



TUNER-BOTTOM VIEW

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amplifier	2BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	5CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120		13L8DB121K	NPO-SI 120	D6-121	L10T12	ED-120		5TCC-T12	10%
C202	30		13M320EA300J-05							
C203	28		13R-005							10%
C204	12		13R-003							10%
C205	800		13M320EA801Z-04							
C206	5-10		31T-3149-02							
C207	47		13M130U470J							5%
C208	1-4.5		31B-902-07		829-6		532-B			
C209	800		13M320EA801Z-04							
C210	1-4.5		31B-902-07		829-6		532-B			
C211	47		13R-008							10%
C212	30		13M320EA300M-06							
C213	1000		13R-024							
C214	6.8		13R-014							N330 .5%
C215	3		13R-011							.3%
C216	2		13R-009							N750 .1%
C217	800		13M320EA801Z-04							
C218	800		13M320EA801Z-04							
C219	800		13M320EA801Z-04							

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		PART No.	NOTES
	OHMS	WATT		
R201	4700Ω			
R202	1000Ω			
R203	3900Ω			
R204	220K			

ITEM No.	RATING		PART No.	NOTES
	OHMS	WATT		
R205	1000Ω			
R206	10K			
R207	10K			
R208	6800Ω			

COILS (RF-IF)

ITEM No.	USE	PART No.	NOTES
L201	Ant. Trans.	31T-210-01	Includes Assy.
L202	IF Trap Coil	34A-748	
L203	IF Trap	31TA-2109	
L204A	Ant., RF, Mixer Grid, Osc. Coils	31M-300-2N4A	Channel 2
B	"	31M-300-3N4A	Channel 3
C	"	31M-300-4N4A	Channel 4
D	"	31M-300-5N4A	Channel 5
E	"	31M-300-6N4A	Channel 6
F	"	31M-300-7N4A	Channel 7

ITEM No.	USE	PART No.	NOTES
L204G	Ant. RF, Mixer Grid, Osc. Coils	31M-300-8N4A	Channel 8
H	"	31M-300-9N4A	Channel 9
I	"	31M-300-10N4A	Channel 10
J	"	31M-300-11N4A	Channel 11
K	"	31M-300-12N4A	Channel 12
L	"	31M-300-13N4A	Channel 13
L205	RF Choke	25A-176-01	
L206	Mixer Plate Coil	31U-530-01	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PART No.	REPLACEMENT DATA	
K201	Antenna Isolation	470mmf, .3-1meg	13P-198 *	Centralab Sprague	RC-471 R-9177
K202	Antenna Isolation	470mmf, .3-1meg	13P-198 *	Centralab Sprague	RC-471 R-9177

* Alternate part #76X11.

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M201	Ant. Input Assy. Drum Assy. Osc. Slug	31T-2107-07 31TA-2073-171-08 15A266	Includes K201, K202, L201 Less strips 12 Required.

NOTE: Part numbers listed above are "Standard Coil" Part Numbers.

TP1 185V HORIZ WAVEFORM

CHASSIS TOP VIEW

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BZ6	500K	47Ω	12Ω	13Ω	†2100Ω	†2100Ω	0Ω		
V2	3BZ6	490K	47Ω	13Ω	14Ω	†2100Ω	†2100Ω	0Ω		
V3	3CB6	.1Ω	180Ω	14Ω	15Ω	†1700Ω	†1700Ω	0Ω		
V4	5U8	†7300Ω	2Ω	†34K	15Ω	16Ω	†34K	560Ω	1.5Ω	3900Ω
V5	12BY7A	•380Ω	1meg	0Ω	19Ω	19Ω	18Ω	†3600Ω	†1200Ω	0Ω
V6	3AU6	†30K	†1200Ω	10.5Ω	11Ω	90K	†0Ω	†1200Ω		
V7	5U8	†12K	100K	†150K	16Ω	17Ω	†83K	0Ω	0Ω	47K
V8	3BN6	•220Ω	3.2Ω	9Ω	10.5Ω	†5900Ω	5.7Ω	†330K		
V9	5AQ5	0Ω	270Ω	18Ω	17Ω	†970Ω	†470Ω	0Ω		
V10	3BY6	•300K	0Ω	12Ω	11Ω	†820K	†28K	2.2meg		
V11	10DE7	†390Ω	2.2meg	2.2meg	20.5Ω	19Ω	•ǂ1.4meg	• 770K	220Ω	•1400Ω
V12	6CG7	†56K	410K	0Ω	9Ω	8Ω	•†27K	1.5meg	410K	0Ω
V13	12DQ6A	TP	4.5Ω	NC	†10K	470K	TP	7Ω	100Ω	TOP CAP ǂ10Ω
V14	12AX4GTA	TP	NC	¶	NC	†.1Ω	TP	4.5Ω	2Ω	
V15	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ǂ300Ω
V16	21CBP4A	7Ω	1meg	PIN 6 †100K	PIN 10 ǂ10meg	PIN 11 •240K	PIN 12 8Ω			
V201	2BN4	0Ω	500K	2Ω	1.5Ω	†2200Ω	0Ω	500K		
V202	5CG8	10K	†8000Ω	0Ω	0Ω	1.5Ω	†2200Ω	†11K	0Ω	220K

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

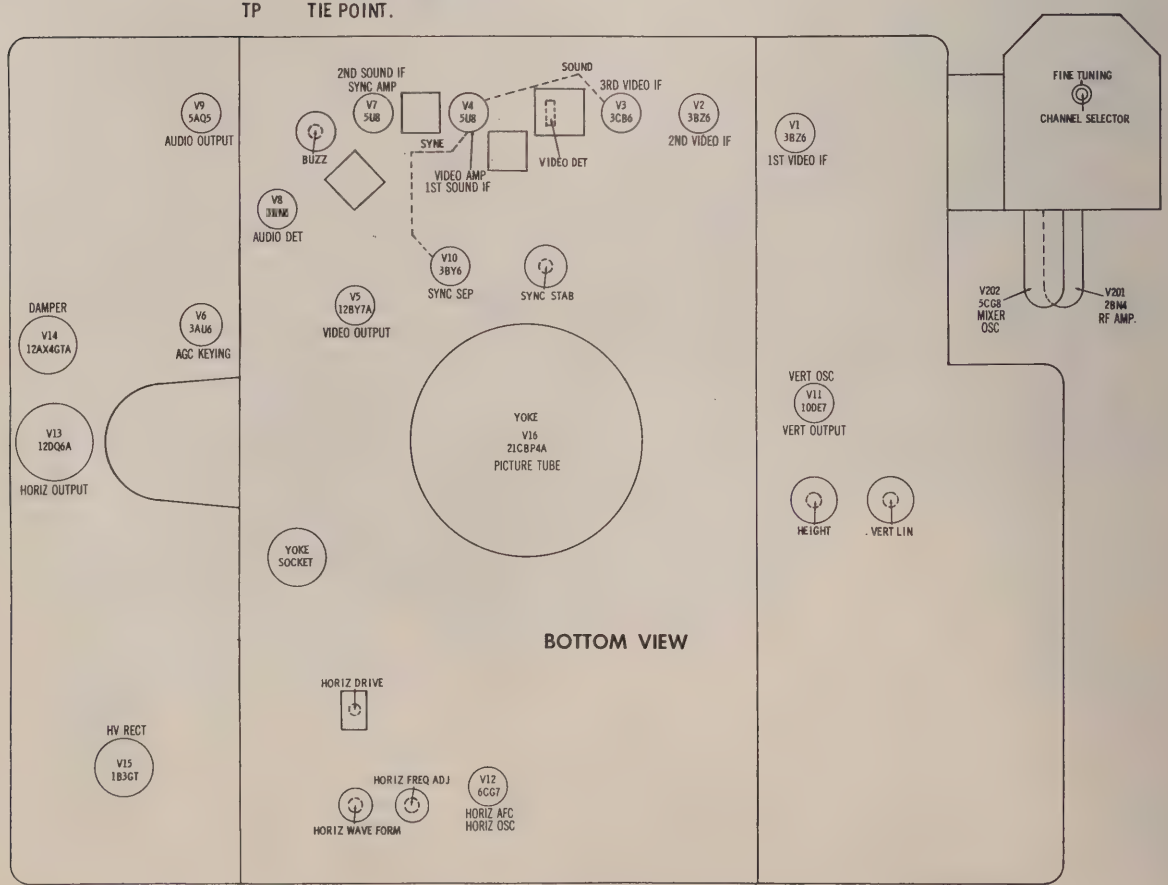
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

† MEASURED FROM 250V SOURCE.

ǂ MEASURED FROM PIN 3 OF V14.

NC NO CONNECTION.

TP TIE POINT.



TUBE PLACEMENT CHART

PHOTOFACT* Folder
*TRADE MARK
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

MAGNAVOX CHASSIS U26-01AA, -02AA, -03AA, -04AA, V26-01AA, -02AA, -03AA, -04AA, AMP-142CC, AMP-169AA, CR-745BB (26 Series)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 2 knob escutcheons from the front and 10 push-on type control knobs.
2. Remove 10 wood screws holding the rear cover. Remove the rear cover.
3. Remove 2 plugs from control unit.
4. Remove 2 tuner plugs.
5. Remove Phono input plug and Amplifier plugs.
6. Remove 2 wood screws holding the top chassis braces.
7. Remove 8 chassis bolts from the bottom.
8. Remove the chassis.
9. Remove 1 wood screw holding the antenna terminal board.
10. Use the special spanner wrench included with the cabinet and remove 2 hex nuts from the front control shafts holding the control unit and tuner assembly. Remove the assembly.
11. Remove speaker leads.
12. Remove 1 wood screw holding the speaker terminal board.
13. Remove 4 wood screws holding the amplifier chassis.
14. Remove the amplifier chassis.

MAGNAVOX CHASSIS U26-01AA, -02AA, -03AA, -04AA, V26-01AA, -02AA, -03AA, -04AA, AMP-142CC, AMP-169AA, CR-745BB (26 Series)

MAGNAVOX CHASSIS U26-01AA, -02AA, -03AA, -04AA, V26-01AA, -02AA, -03AA, -04AA, AMP-142CC, AMP-169AA, CR-745BB (26 Series)

TRADE NAME	Magnavox	CHASSIS
		U26-01AA, V26-01AA U26-02AA, U26-04AA, V26-02AA, V26-04AA, AMP-169AA, Control Unit 700660 U26-03AA, V26-03AA, AMP-142CC, CR-745BB
MANUFACTURER	Magnavox Co., 2131 Bueter Road, Fort Wayne 4, Ind.	
TYPE SET	Television Receiver	
TUBES	Twenty	
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 215 Watts, 2 Amp. @ 117 Volts AC (TV only)
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)	

FOR SERVICE INFORMATION ON CHASSIS AMP-142CC REFER TO SIMILAR UNIT IN PHOTOFACT SET 311 - FOLDER 9. FOR SERVICE INFORMATION ON CHASSIS AMP-169AA & CR-745BB REFER TO FOLDERS 8 & 9 OF THIS SET.

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the Channel Selector and Fine Tuning knobs. Set the Fine Tuning at the center of its range. The adjustments are accessible, one at a time, as the Channel Selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 6 wood screws from the top metal trim strip. Tilt the safety glass out at the top and lift up to remove.

FOCUS

The focus may be varied in steps by the position of a plug in the Focus Adjustment board.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the Horizontal Oscillator, it is necessary to remove the rear cover and supply power to set. Set the Horizontal Hold at the center of its range and adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart.)

FUSES

One fuse is used for Horizontal Sweep circuit protection. (For location, see tube placement chart.)

CENTERING

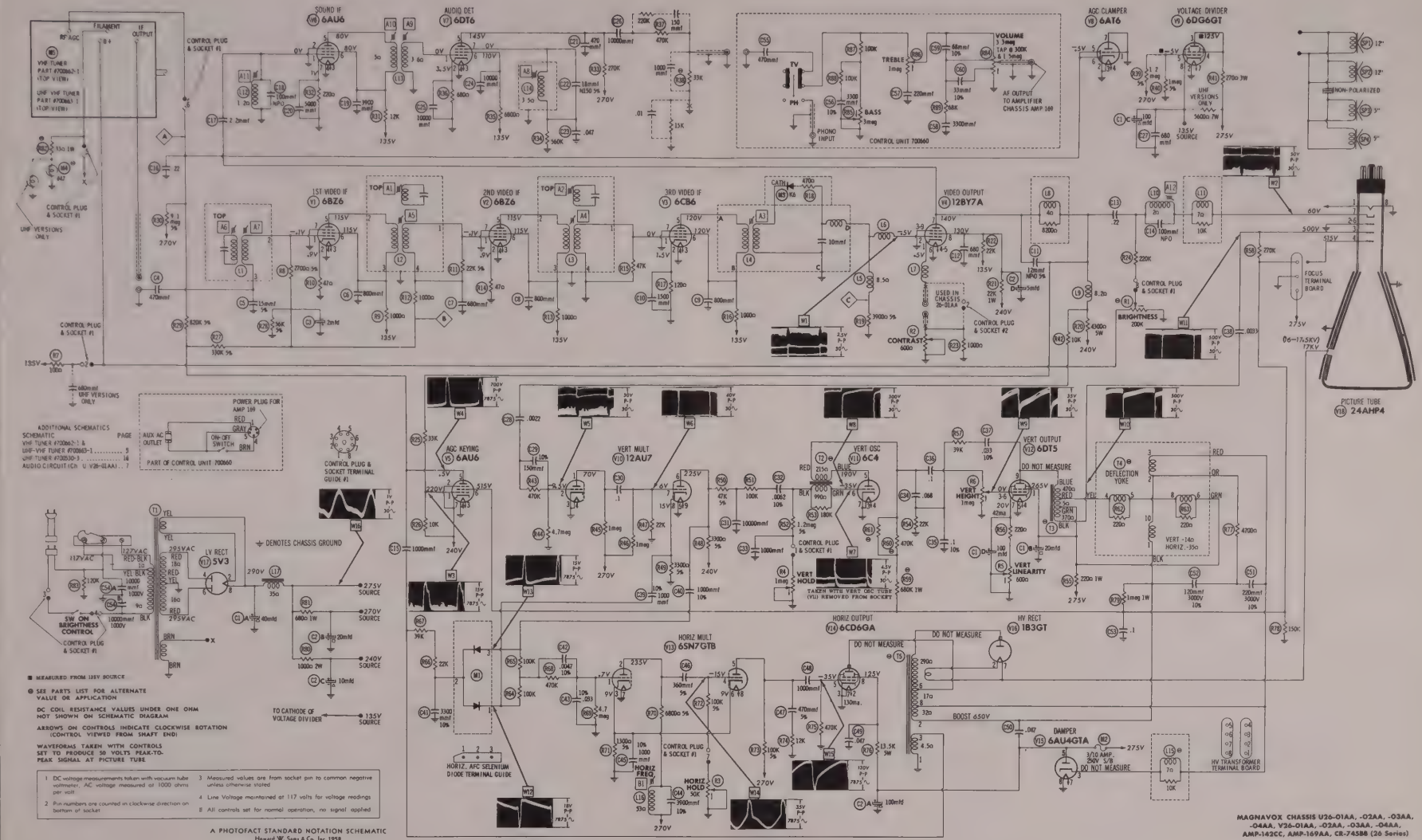
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

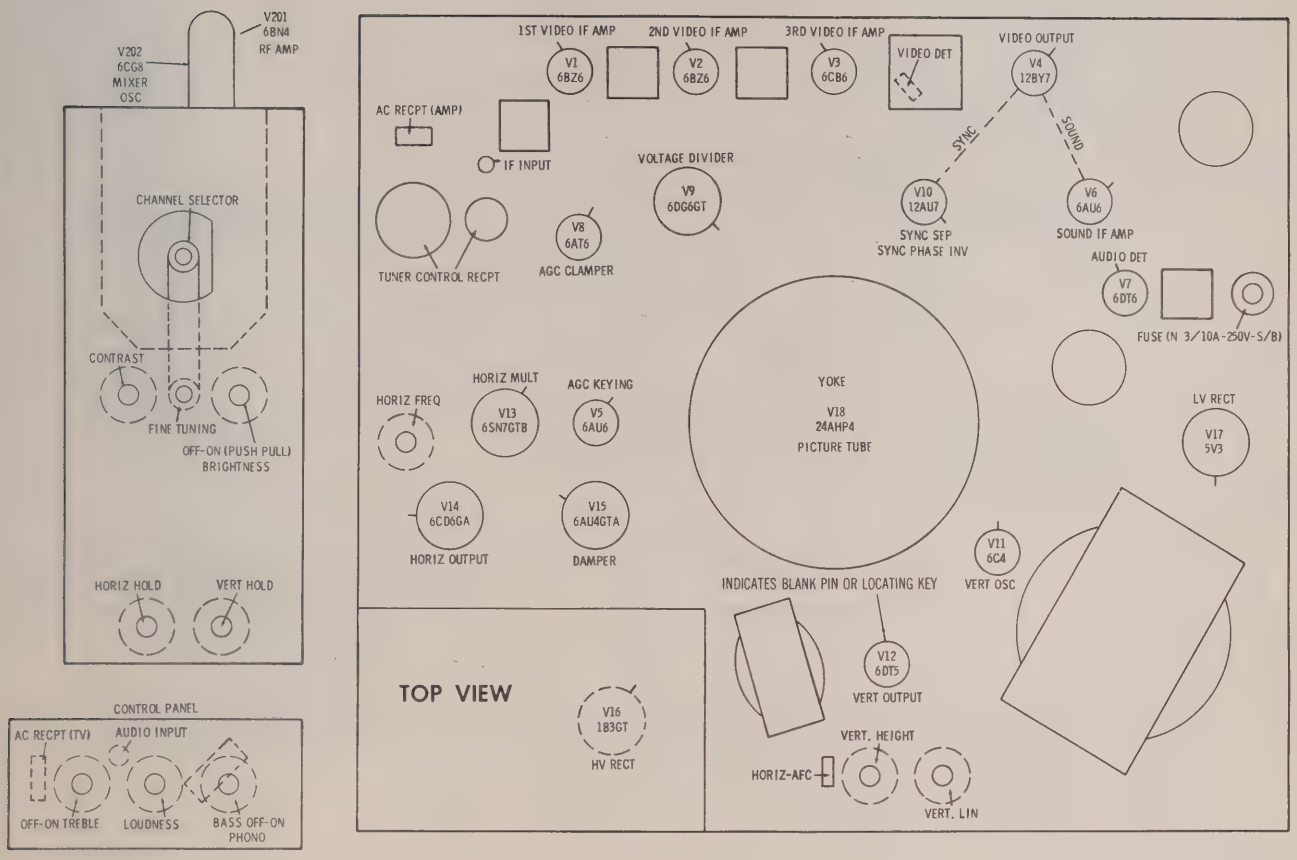
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H519

SET 404 FOLDER 3


SOUND IF V6 6AU6
AUDIO DET V7 6DT6
AGC CLAMPER V8 6AT6
VOLTAGE DIVIDER V9 6DG6GT
1ST VIDEO IF V1 6BZ6
2ND VIDEO IF V2 6BZ6
3RD VIDEO IF V3 6CB6
VIDEO OUTPUT H 12BY7A
AGC KEYING V5 6AU6
VERT MULT V10 12AU7
VERT OSC V11 6C4
VERT OUTPUT V12 6DT5
HORIZ MULT V13 6SN7GTB
HORIZ OUTPUT V14 6CD6GA
DAMPER V15 6AU4GTA
HV RECT V16 1B3GT
LV RECT V17 5V3
PICTURE TUBE V18 24AHP4
VOLUME
TREBLE
BASS
BRIGHTNESS
CONTRAST
VERT HEIGHT
VERT LINEARITY
HORIZ FREQ
HORIZ HOLD
BOOST 650V
CONTROL UNIT 700660
CONTROL PLUG & SOCKET #1
CONTROL PLUG & SOCKET #2
CONTROL PLUG & SOCKET TERMINAL GUIDE #1
HORIZ. AFC SELENIUM DIODE TERMINAL GUIDE
HV TRANSFORMER TERMINAL BOARD
FOCUS TERMINAL BOARD
DEFLECTION YOKE
DO NOT MEASURE
TAKEN WITH VERT OSC TUBE (V11) REMOVED FROM SOCKET
DENOTES CHASSIS GROUND
TO CATHODE OF VOLTAGE DIVIDER
ADDITIONAL SCHEMATICS
AUDIO CIRCUIT (CH. U V26-01AA) . . 7
MEASURED FROM 135V SOURCE
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1 DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt.
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958
MAGNAVOX CHASSIS U26-01AA, -02AA, -03AA, -04AA, V26-01AA, -02AA, -03AA, -04AA, -03AA, -04AA, AMP-142CC, AMP-169AA, CR-745B8 (26 Series)

TUBE PLACEMENT CHART



MAGNAVOX CHASSIS U26-01AA, -02AA, -03AA, -04AA, V26-01AA, -02AA, -03AA, -04AA, AMP-142CC, AMP-169AA, CR-745BB (26 Series)

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound V17

SWEEP FAILURE
No raster, has sound Fuse (M2), Rectifier (M1), V13, V14, V15, V16, V18
No vertical deflection V11, V12
Poor vert. linearity or foldover V11, V12
Poor horiz. linearity or foldover V13, V14, V15
Narrow picture V13, V14, V15, V17
Vert. off freq. V11
Horiz. off freq. V13

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (M3), V4, V9
No pic, no sound, has snow V201, V202, V1, V9
No pic, has sound, has raster V4, V18, V9
Has pic, no sound V6, V7, V9
Overloaded picture V5

SYNC FAILURE
No vert. sync V10
No horiz. sync V10, M1
No vert. or horiz. sync V10

FOLDER 3

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 1.5 volt bias supply to point (A). Positive to chassis.
Connect the negative lead of a 3 volt bias supply to point (B). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The Sweep Generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough Sweep Generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Detune Mixer Plate coil by turning core fully counter clockwise.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001mfd	High side to pin 1 (grid) of 6BZ6 (V1). Low side to chassis.	43.5MC	47.25MC	Any non-interfering channel	Vert. Amp. thru 10K to point (C). Low side to chassis. (Across Video Det. load).	A1, A2	Adjust to place marker in trap notch. If two points are found to do this, use the one with slug farthest counterclockwise.
2.	"	"	"	42.25MC 45.0MC 45.75MC 47.25MC	"	"	A3, A4, A5	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
3.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of Sweep Generator to the metal strip. Low side to chassis.	"	41.25MC	"	"	A6	Adjust to place marker in trap notch. If two points are found to do this, use one with slug farthest counterclockwise.
4.	"	"	"	41.25MC 42.25MC 45.0MC 45.75MC	"	"	A7 & Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Adjust Mixer Plate coil for maximum gain with 45.75MC marker at 50%. Adjust A7 for maximum gain and proper tilt. Due to interaction it may be necessary to repeat adjustment. Recheck step 3.

SOUND IF ALIGNMENT

Turn the Contrast control fully clockwise and A8 fully counter clockwise.
Tune in a strong TV signal (preferably with a tone signal or music). Adjust A8 just past the point of maximum sound and MINIMUM distortion.
Reduce the signal strength by disconnecting the antenna or connecting an adjustable attenuator between the antenna leads and the receiver antenna terminals so that with the Volume control set fully clockwise the sound is at a low level.
Tune the Fine Tuning thru undistorted sound. Set the Fine Tuning to the verge of distortion.
Adjust A9, A10 and A11 for MINIMUM distortion.
Readjust the Fine Tuning during adjustments of A9, A10 and A11 to keep it at the verge of distortion.

4.5MC TRAP ALIGNMENT

Tune in a TV station and turn the Fine Tuning slowly clockwise until 4.5MC beat interference becomes visible in the picture. Adjust A12 until the horizontal scanning lines are smooth and continuous.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 6.

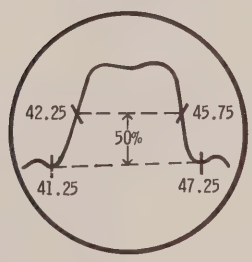
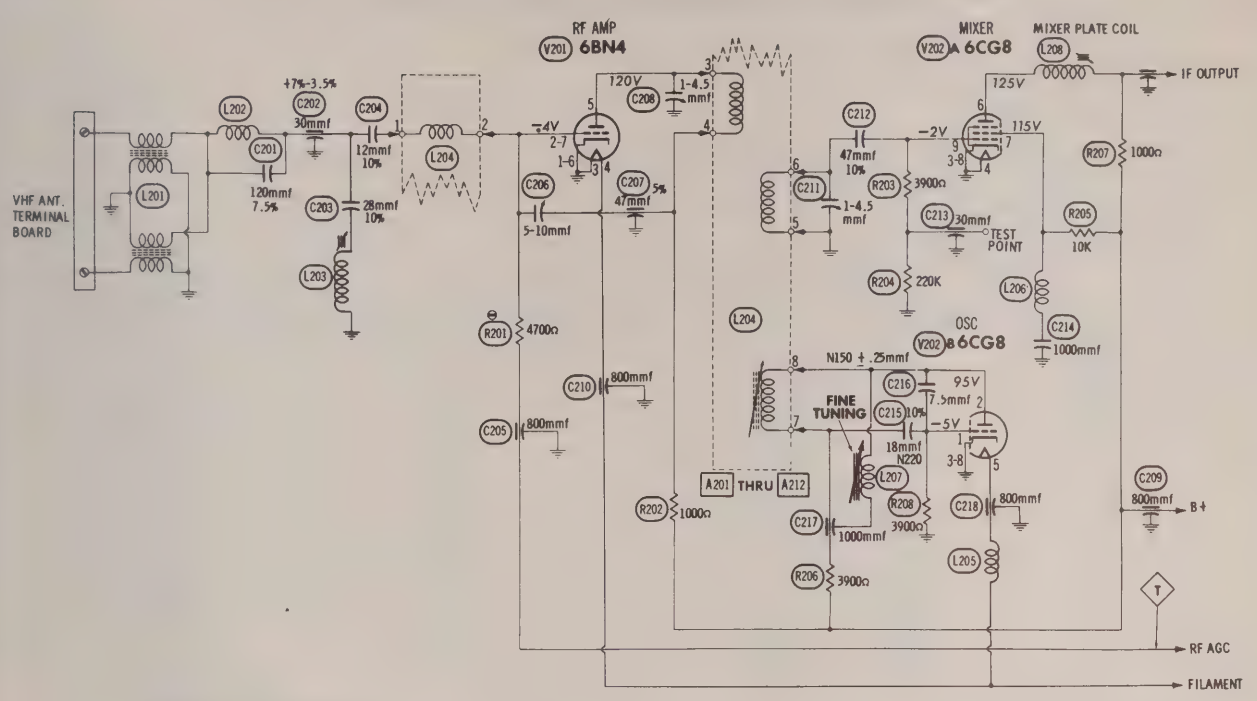


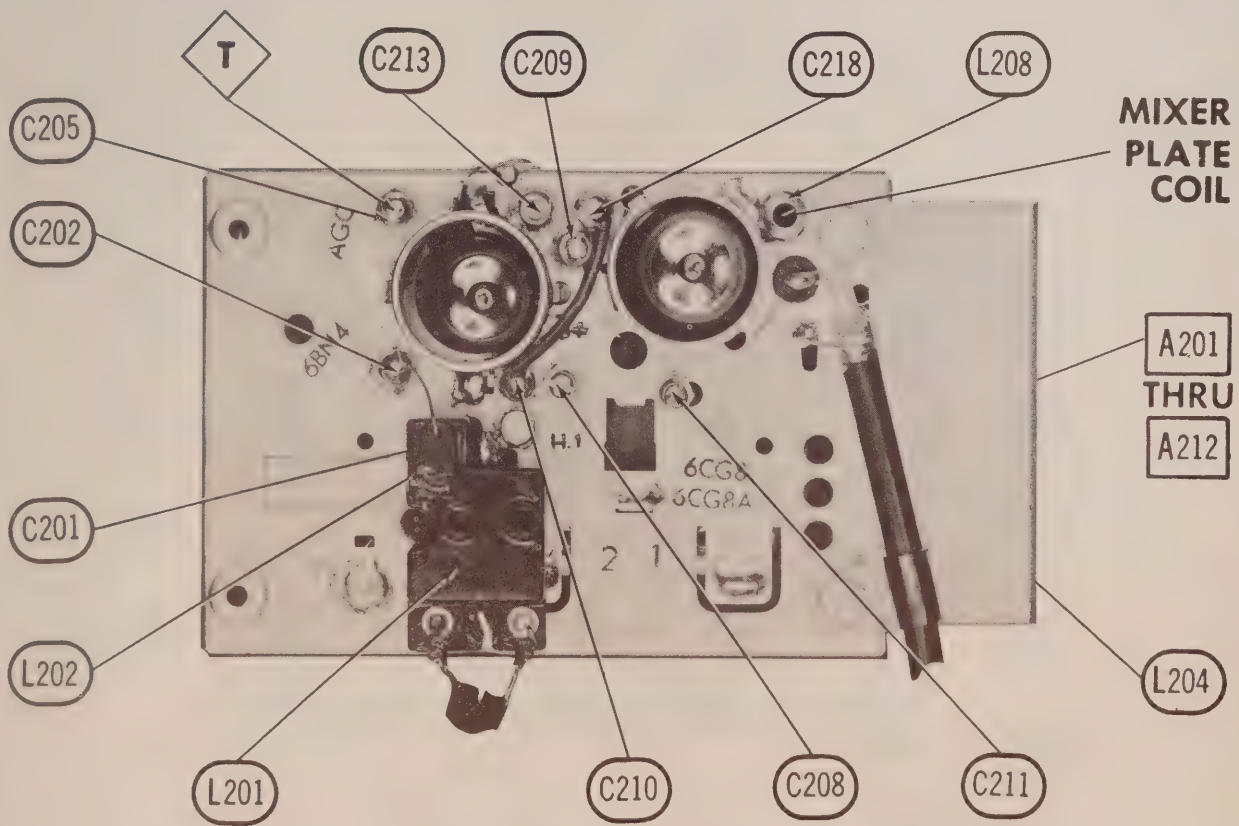
FIG.1



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF TUNER #700662-1, UHF-VHF TUNER #700663-1



RF TUNER TOP VIEW

SET 404 FOLDER 3

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VHF OSCILLATOR ALIGNMENT

Connect the negative lead of a 1.5 volt bias supply to point Ⓣ. Positive to chassis.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The Sweep Generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough Sweep Generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Set the Fine Tuning to the center of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Detector load.	A201	Adjust to place sound marker in trap notch as in Fig. 201. Video marker should fall at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A202	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A203	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A204	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A205	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A206	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A207	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A208	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A209	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A210	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A211	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A212	

VHF RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER

This protion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

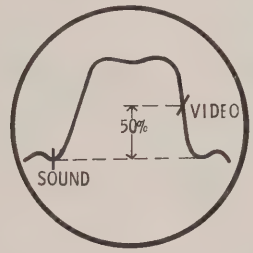
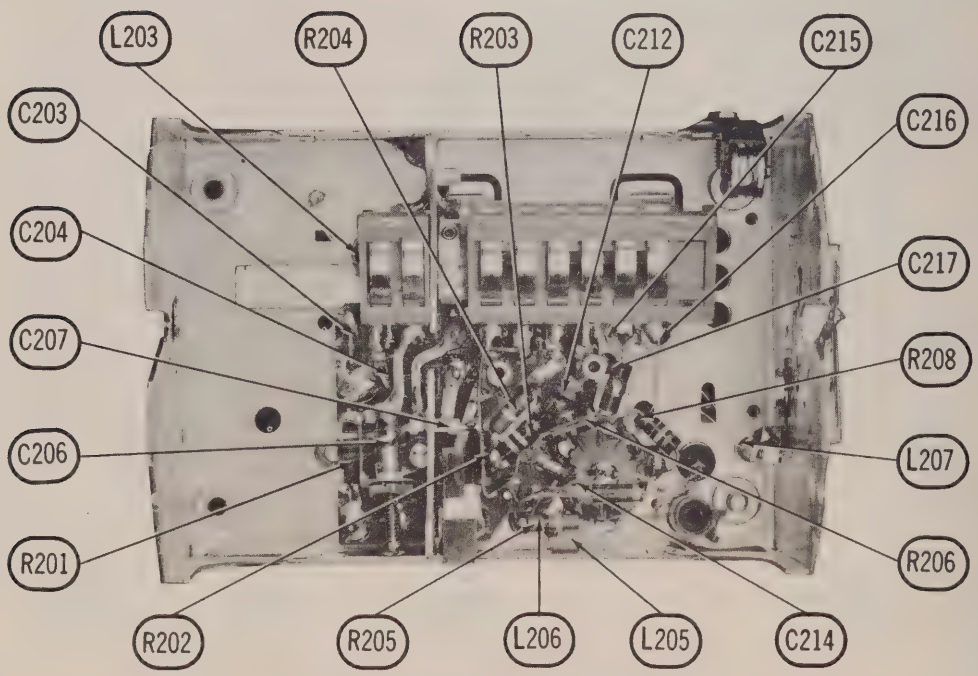
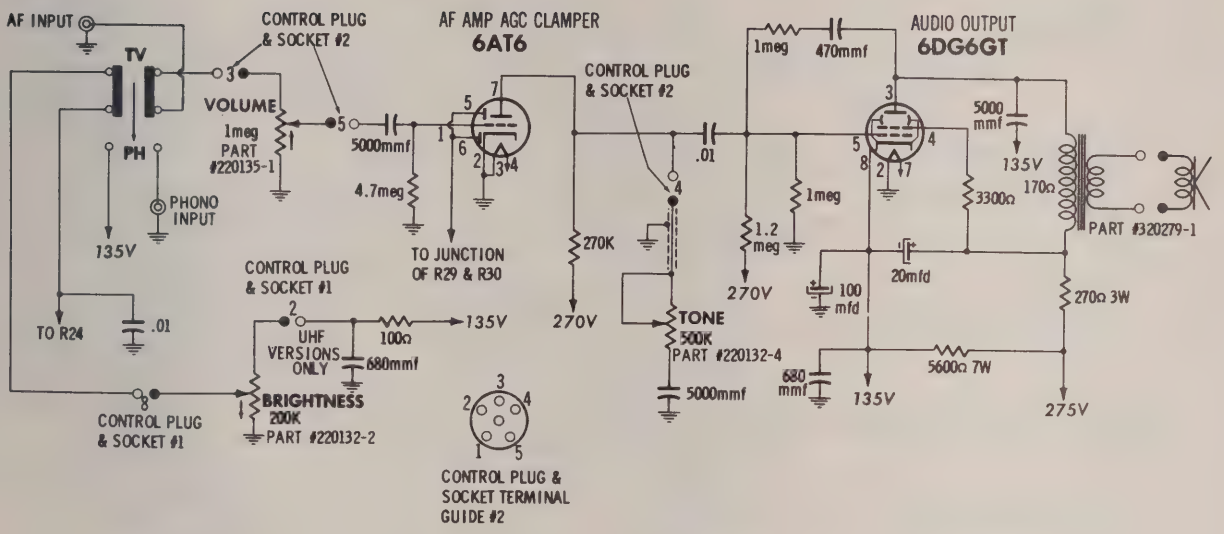


FIG. 201

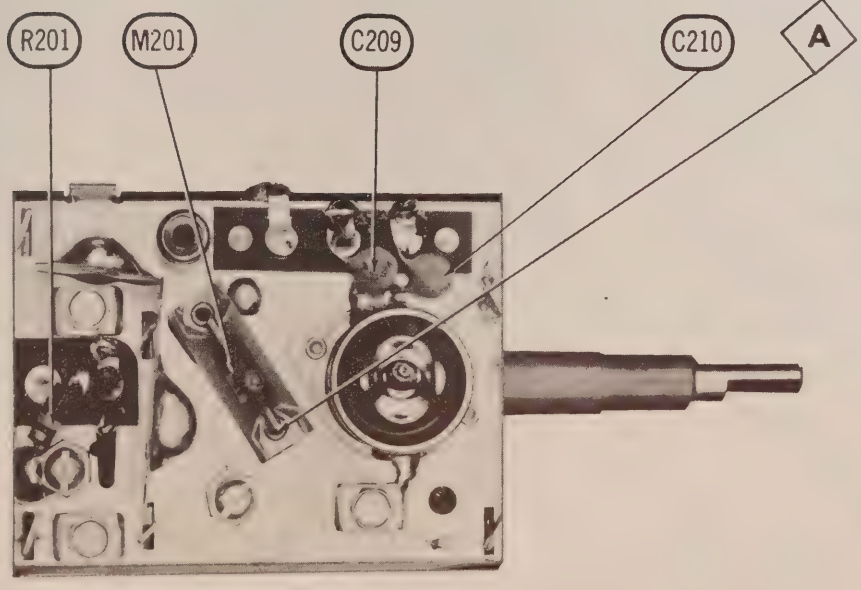


RF TUNER—BOTTOM VIEW



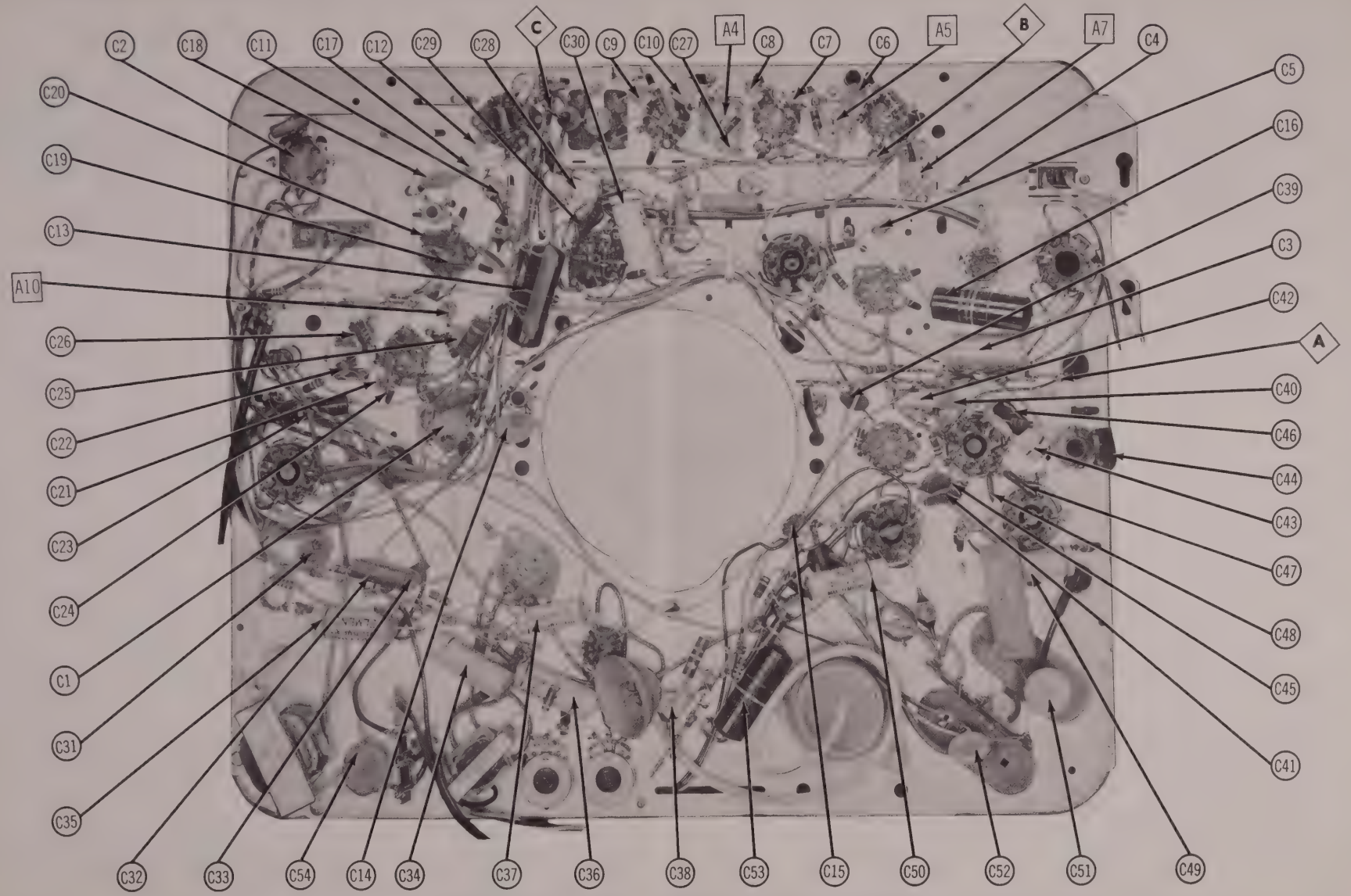
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

AUDIO CIRCUIT USED IN CH. U/V26-01AA

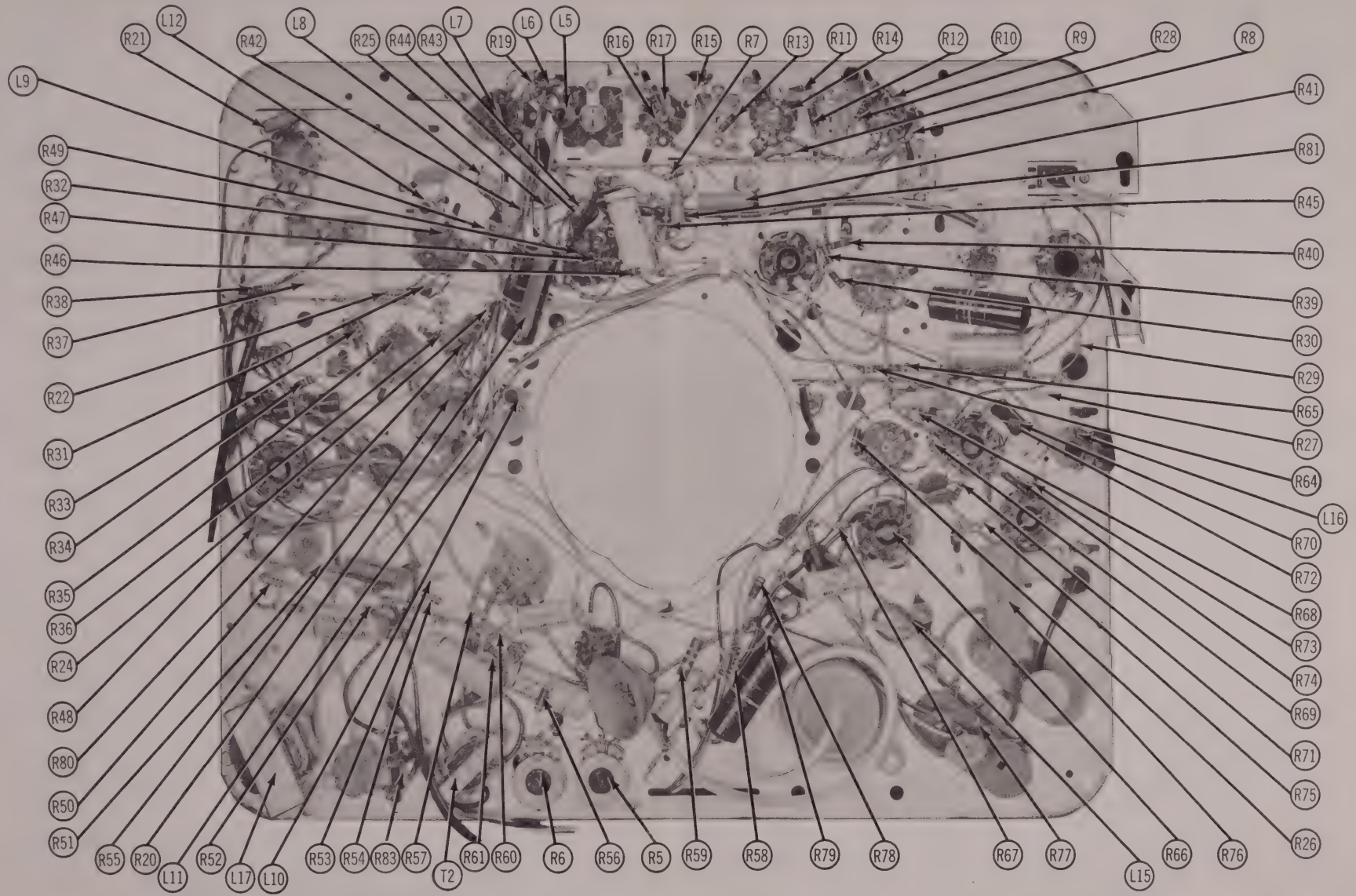


UHF TUNER TOP VIEW

SET 404 FOLDER 3



CHASSIS BOTTOM VIEW - CAPACITOR & ALIGNMENT IDENT.



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp.	6BZ6	
V2	2nd. Video IF Amp.	6BZ6	
V3	3rd Video IF Amp.	6CB6	
V4	Video Output	12BH7A	
V5	AGC Keying	6AU6	
V6	Sound IF Amp.	6AU6	
V7	Audio Det	6DT6	
V8	AGC Clamper	6AT6	

ITEM No	USE	TYPE	NOTES
V9	Voltage Divider	6DG6GT	
V10	Sync Sep -Sync Phase Inv.	12AU7	
V11	Vert Osc	6C4	
V12	Vert Output	6DT5	
V13	Horiz Mult.	6BN7GTB	
V14	Horiz Output	6CD6GA	
V15	Damper	6AU4GTA	
V16	HV Rectifier	1B3GT	
V17	LV Rectifier	5V3	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	MAGNAVOX PART No	GENERAL ELECTRIC PART No.	RCA PART No	SYLVANIA PART No	
V18	24AHP4		24AHP4 ①	24AHP4 ②	① "Silverama" ③ ② "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING CAP.	RATING VOLT	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No.
C1A	40	350	270021-73	AFH4-130-10	D0995	FP453	TMQ-168	Q-321.5	R2662*
B	20	350				TC55	TD-20-350	MT-0650	
C	100	300							
D	10	50							
C2A	100	350	270021-72	AFH4-07	D0044	FP389.1		Q-025	R2661 *
B	20	350				TC50		MT-4330	
C	10	350							
D	5	350							
C3	2	50	270021-71	PRS50V2	BBR2-50	TC302	TD-2-50	MT-0502	TVA-1301

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No	SPRAGUE PART No.	NOTES
C4	470		250218-8	BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C5	15		250234-11		TCZ-15				5%
C6	300		250218-14	BPD-0008	DD-301	L10T8		5GA-T8	
C7	680		250218-4	BPD-00068	DD-681	BYA10T68	UC-5368	5GA-T68	
C8	300		250218-14	BPD-0008	DD-301	L10T8		5GA-T8	
C9	300		250218-14	BPD-0008	DD-301	L10T8		5GA-T8	
C10	1500		250218-18	BPD-0015	DD-152	BYA10D15	DC5I5	5HK-D15	
C11	13		250175-60		DTZ-12				NPO 5%
C12	680		250218-4	BPD-00068	DD-681	BYA10T68	UC-5368	5GA-T68	
C13	22	400	250211-11	P488N-22		CUB4P22	GEM-4022	4TM-P22	
C14	100		250175-59	NPO-DI 100	DTZ-100	C10T1C	ET-531	5TCC-T1	NPO
C15	100		250218-38	BPD-001	DD-103	BYA5I1	DC5I1	5HK-D1	
C16	22	400	250211-15	P488N-22		CUB4P22	GEM-4022	4TM-P22	
C17	2 2		250221-118	NPO-SI 2.2	TCZ-2R2	CTA5Y22C		5TCCB-V22	
C18	100		250175-59	NPO-DI 100	DTZ-100	C10T1C	ET-531	5TCC-T1	
C19	3900		250175-31		DD-392	L20D39		5GA-D39	NPO
C20	5000		250175-30	BPD-005	DD-502	BYA10D5	DC535	5HK-D5	
C21	470		250218-8	BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C22	18		250175-54						N150 5%
C23	047	200	250211-11	P388N-047	DF-503	CUB3847	GEM-4147	3TM-S47	
C24	10000		250218-19	BPD-01	DD-103	BYA5I1	DC5I1	5HK-S1	
C25	10000		250218-19	BPD-01	DD-103	BYA5I1	DC5I1	5HK-S1	
C26	10000		250218-19	BPD-01	DD-103	BYA5I1	DC5I1	5HK-S1	
C27	680		250218-4	BPD-00068	DD-681	BYA10T68	UC-5368	5GA-T68	
C28	0033	600	250211-3	P488N-0033	D8-332	CUB6D33	GEM-6333	6TM-D33	
C29	150		250239-5234	1468-00015	DD-151	SR5715		MS-315	10%
C30	.1	400	250211-13	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C31	10000		250218-19	BPD-01	DD-103	BYA5I1	DC5I1	5HK-S1	
C32	0068	600	250277-118						10%
C33	1000		250218-35	BPD-001	DD-102	BYA5I1	DC5I1	5HK-D1	
C34	.068	400	250211-13	P488N-068		CUB4S68	GEM-4168	4TM-S68	
C35	.1	200	250213-20			BYA5I1	GEM-301		10%
C36	.1	400	250211-13	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C37	.033	600	250213-19						10%
C38	0033	600	250301-4	P668N-0033	D8-333	CUB6D33	GEM-6333	6TM-D33	
C39	1000		250218-8			1R5D1	MCB251	MS-21	
C40	1000		250218-8			1R5D1	MCB251	MS-21	
C41	3300		250175-26			1R5D83		MS-333	10%
C42	.0047	400	250213-4				GEM-16347		10%
C43	.033	400	250213-19						10%
C44	3900		250238-468	1464-0039		1R5D39		MS-339	10%
C45	1000		250218-8			1R5D1	MCB251	MS-21	10%
C46	380		250239-343	1469-00036		5R5T38		MS-338	5%
C47	470		250229-348	1464-00047		5R5T47		MS-347	5%
C48	1000		250218-8	1464-001		1R5D1		MS-21	5%
C49	.047	400	250211-11	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C50	.047	400	250211-11	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C51	220	3000	250175-63						10%
C52	120	3000	250175-62						10%
C53	.1	600	250201-13	P668N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C54A	10000	1000	250219-3	DAC-27	DD16-103	HVE1681		BL-S10	
B	10000	1000		DAC-27	DD16-103	HVE1681		BL-S10	

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	200K	1/2	220135-6					Brightness - Note 1
B	Switch							
R2	800Ω	1/2	220126-56	B-415		Q17-105	U75LR	Contrast
R3A	50K	1/2	220132-1	B-31	A47-50K-8	Q11-123	TA546	Horiz. Hold
B	Shaft			Not Req.	KS8-3	Not Req.	Not Req.	
R4A	1meg	1/2	220132-15	B-89	A47-1meg-8	Q11-137	TA16L	Vert. Hold
B	Shaft			Not Req.	KS8-3	Not Req.	Not Req.	
R5A	800Ω	1/2	220146-7	AB-4	A47-750-8	Bil-105	PTA75LL	Vert. Lin.
B	Shaft			AK-1	FKS-1/4	SK3	Not Req.	
R6A	1meg	1/2	220146-8	AB-69	A47-1meg-8	Bil-137	TA16L	Vert. Height
B	Shaft			AK-1	FKS-1/4	SK3	Not Req.	

Note 1. Ch. U/V26-01AA use a brightness control without switch Part #220133-3.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MAGNAVOX PART No.	NOTES
R7	100Ω		250104-50	
R8	2700Ω 5%		250104-129	
R9	1000Ω		250104-43	
R10	47Ω		250104-45	
R11	22K 5%		250094-19	
R12	1000Ω		250104-62	
R13	1000Ω		250104-62	
R14	47Ω		250104-46	
R15	47K		250104-53	
R16	1000Ω		250104-62	
R17	120Ω		250104-51	
R18	470Ω			
R19	39000 5%		250094-173	
R20	4300Ω	5	240073-1	
R21	22K	1	250105-78	
R22	22K		250104-78	
R23	1000Ω		250104-62	
R24	220K		250104-90	
R25	33K		250104-80	
R26	10K		250104-74	
R27	330K 5%		250094-219	
R28	56K 5%		250094-201	
R29	820K 5%		250094-229	
R30	9.1meg 5%		250094-254	
R31	12K		250104-75	
R32	220Ω		250104-54	
R33	270K		250104-91	
R34	560K		250104-95	
R35	680Ω		250104-73	
R36	680Ω		250104-62	
R37	470K		250104-94	
R38	33K		250104-80	Note 1
R39	1.2meg 5%		250094-233	
R40	1meg 5%		250094-231	
R41	270Ω	3	250150-304	
R42	10K		250104-74	
R43	470K		250104-94	
R44	4.7meg		250104-106	
R45	1meg		250104-98	

ITEM No.	RATING OHMS	RATING WATT	MAGNAVOX PART No.	NOTES
R46	1meg		250104-98	
R47	22K		250104-78	
R48	3300Ω 5%		250094-171	
R49	3300Ω 5%		250094-171	
R50	47K		250104-82	
R51	100K		250104-86	
R52	1.2meg 5%		250094-233	
R53	180K		250104-89	
R54	22K		250104-78	
R55	220Ω	1	250105-54	
R56	220Ω		250104-54	
R57	39K		250104-81	
R58	270K		250104-91	
R59	680K	1		Note 2
R60	470K		250104-94	Note 3
R61			250130-3	Note 4
R62	220Ω		250104-54	
R63	220Ω		250104-54	
R64	100K		250104-86	
R65	100K		250104-86	
R66	22K		250104-78	
R67	39K		250104-81	
R68	470K		250104-94	
R69	4.7meg		250104-106	
R70	6800Ω 5%		250094-179	
R71	1200Ω 5%		250094-163	
R72	100K 5%		250094-207	
R73	100K 5%		250094-207	
R74	12K		250104-75	
R75	470K		250104-94	
R76	13.5K	5	240071-38	
R77	4700Ω		250104-70	
R78	180K		250104-89	
R79	1meg	1	250105-98	
R80	1000Ω	2	250105-62	
R81	6800Ω	1	250105-80	
R82	33Ω	1	250105-44	Note 5
R83	120K		250110-1	

Note 1. Ch. U/V26-03AA use 15K in this application (Part #230104-76). Note 4. Temperature compensating resistor.
Note 2. Some versions use 330K in this application (Part #230104-90). Note 5. UHF versions use 1SΩ 2W in this application.
Note 3. Not used in some versions.

TRANSFORMER (POWER)

ITEM No	RATING			REPLACEMENT DATA MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No	Stancor PART No.	Thordarson PART No.	Triad PART No.
	PRI	SEC 1	SEC 2							
T1	127V	560VCT	5V	300098-1						
	Tap ②	③ .300A	③3.5A							
	117V ①									
	SEC 3	SEC. 4	SEC 5							
	6.3V ③10.6A									

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No	NOTES
T2	Vert. Osc.	C330262-3B	B6702	A-3000		A- 8136	36A03	A-97X	
	Alt. Vert. Osc.	330262-3							
T3	Vert. Output	C330075-1							
	Alt. Vert. Output	320078-1							
T4A	Yoke-Horiz. (18.8MH)	C360754-1		MDF-117	Y-110	DY-27A	Y-52	Y-60 &	
B	(10°)-Vert. (13.4MH)			①②	①②③	①②③	①②	NW25 ①	
	Alt. Yoke	360754-1							
M6	Rear Cover &								
	Centering Device	360755-1							
T5	Horiz. Output	360739							
	Alt. Horiz. Output	360739-1							

① Use original rear cover and centering device.
② Use original yoke damping network.
③ Connect yoke terminal #3 to terminal #8 of T5 ; connect yoke terminals #1 and #3 to resistor (R77) ; connect yoke terminal #10 to terminal #2 of T5.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA MAGNAVOX PART No.	Meisner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	1st. Video IF	360654-1					Includes 41.25MC Trap
L2	2nd. Video IF	360644-1					Includes 47.25MC Trap
L3	3rd. Video IF	360644-1					Includes 47.25MC Trap
L4	4th. Video IF	360643-1	17-4514				Includes complete assy.
L5	Shunt Peaking Coil	360622-16	19-3300	TV-196	6130	VP-6	27Ω Microberies
L6	RF Choke	360643-23	19-1004	BC-565	4610		6 Microberies
L7	Resonant Choke	360630-1					1.65 Microberies
L8	Series Peaking Coils	360622-14	19-3075 *	TV-186 *	6172 *	VP-2 *	75 Microberies, wound on 3200Ω resistor
L9	Shunt Peaking Coil	360622-9	19-3250	TV-185	6181	VP-5	235 Microberies
L10	4.5MC Trap	360714-1					
L11	Series Peaking Coil	360622-13	19-3100 ▲	TV-194 ▲	6112 ▲	VP-3 ▲	100 Microberies, wound on 10K resistor
L12	1st. Sound IF	360714-1					
L13	2nd. Sound IF	360715-1		TV-149.			
L14	Quadrature Coil	360716-1				SD-5 *	
L15	RF Choke	360622-13	19-3100 ▲	TV-194 ▲	6112 ▲	VP-3 ▲	100 Microberies, wound on 10K resistor ①

* Parallel with 3200Ω resistor. ▲ Enlarge mounting hole.
* Parallel with 10K resistor. * Remove C22 from circuit.
① Alternate part #360622-9 may be used in some versions.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MAGNAVOX PART No.	Meisner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	NOTES
L16	53Ω		360579-1		TV-165 *		H-103	HS-7 *	* Disregard tap.

FILTER CHOKE

ITEM No	RATINGS CURRENT (Measured)	RATINGS DC. RES.	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA MAGNAVOX PART No	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No	Triad PART No
L17	300A	35Ω	.7 Hy	320074-1						

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA MAGNAVOX PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	583841	12A8AZ5	
SP2	4"	PM	3-4Ω	583860	12A6AZ5	
SP3	5"	PM	3-4Ω	580038-1	5A15T23.2	
SP4	5"	PM	3-4Ω	580038-1	5A15T23.4	

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA MAGNAVOX PART No.	FEDERAL PART No	GENERAL ELECTRIC PART No	INTERNATIONAL PART No	SARKES TARZIAN PART No.	NOTES
M1		530045-2 ①	1215 ①②		1T ①②		① Selenium type. ② Two required.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA MAGNAVOX PART No. FUSE	MAGNAVOX PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2	N	3/10A 250V S/B	180590-4		333.300 (N 3/10A-125V-S/B)	346008	N 3/10	HN 0 to 3/10

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA MAGNAVOX PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M3	KS *		1N60	1N60	Video Det. (Pigtail) * A 1N64 may be used in some versions.

MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
M4	Lamp		#47
M5	Tuner	700683-1	VHF
	Tuner	700683-2	UHF-VHF
	Tuner	700530-3	UHF
M6	Centering Device	360755-1	Includes yoke rear cover
	Belt	441914-1	Fine Tuning

WIRING DATA

High Voltage Lead	Use BELDEN No. 8889
Shielded Hook-up Wire	Use BELDEN No. 8685 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8464 (Round) - 4 Conductor 8465 (Round) - 5 Conductor 8466 (Round) - 8 Conductor

MAGNAVOX CHASSIS U26-01AA, -02AA, -03AA, -04AA, V26-01AA, -02AA, -03AA, -04AA, AMP-162CC, AMP-169AA, CR-7458B (26 Series)

FOLDER 3

CONTROL UNIT

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No	SPRAGUE PART No.	NOTES
C55	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C56	3300		250175-41			1R5D33		MS-333	10%
C57	330		250218-8	BPD-00022	DD-221	L10T22	UC-5322	5GA-T22	
C58	3300		250175-41			1R5D33		MS-333	
C59	68		250224-436	1468-000063	D6-680	1R5Q68		MS-468	10%
C60	33		250224-416	1468-000033	D6-330	1R5Q33	ZT-5433	MS-433	10%

CONTROLS

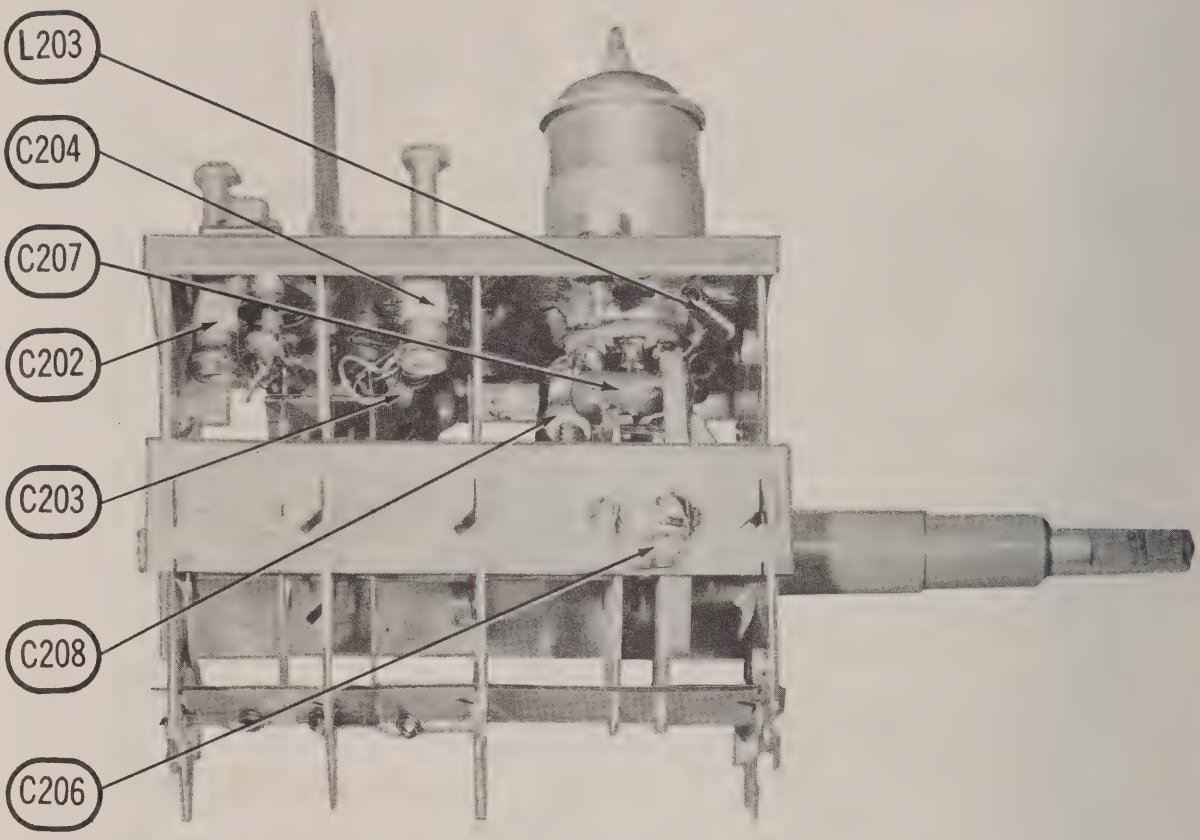
ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R84A	3.3meg	1/2	220131-12					Loudness-Tap ② 300K & 1.5meg
B	Shaft							
R85A	3meg	1/2	220127-8					Bass
B	Switch							
R86A	1meg	1/2	220133-31				PP25L	Treble
B	Shaft						Not Req.	
C	Switch						Not Req.	

RESISTORS

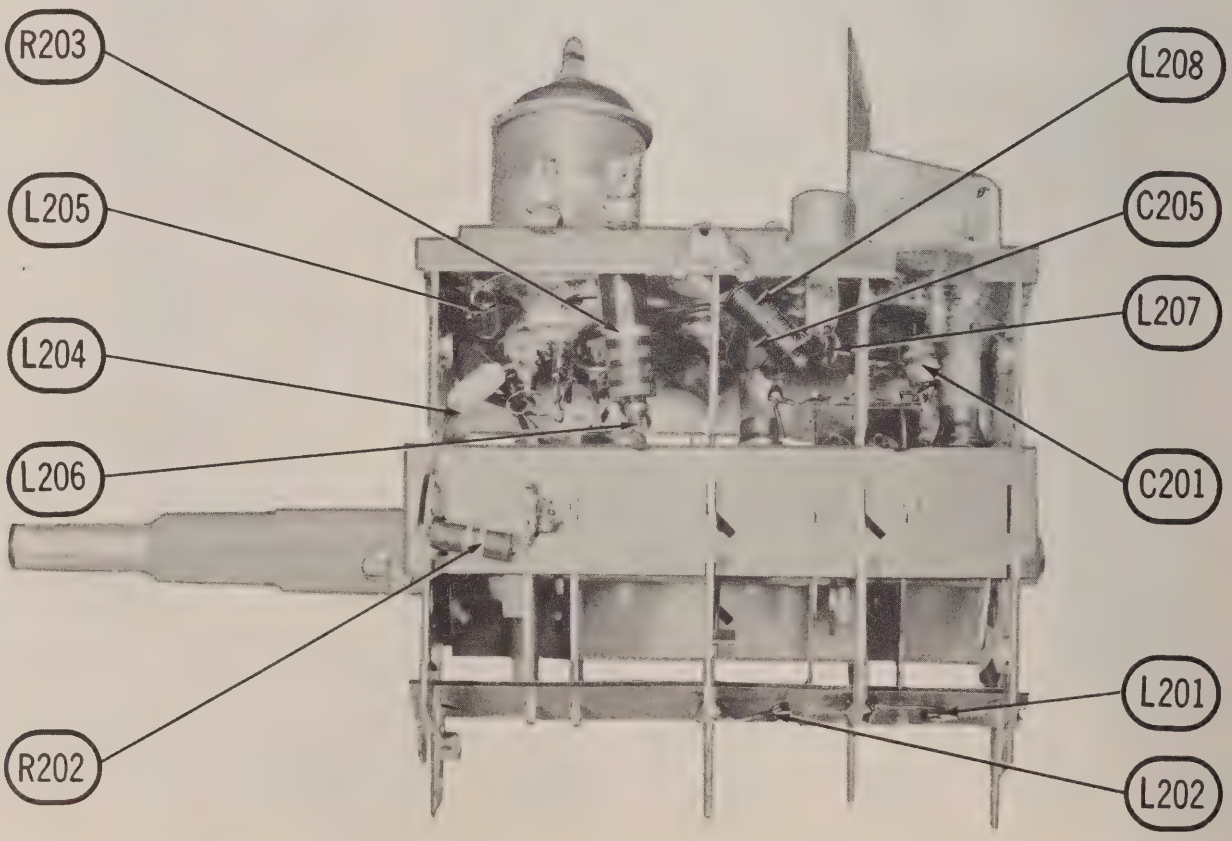
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MAGNAVOX PART No.	NOTES
R87	100K		230104-86	
R88	100K		230104-86	

ITEM No.	RATING OHMS	RATING WATT	MAGNAVOX PART No.	NOTES
R89	68K		230104-84	



UHF TUNER LEFT SIDE



UHF TUNER RIGHT SIDE

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120		250278						7.5%
C202	30		250279						+7%, -3.5%
C203	28		250280						10%
C204	12		250281						10%
C205	800		250282						
C206	5-10		260149						
C207	47		250283						5%
C208	1-4.5		260148						
C209	800		250282						
C210	800		250282						
C211	1-4.5		260148						
C212	47		250285						10%
C213	30		260284						
C214	1000		250289	BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C215	18		250287						N220 10%
C216	7.5		250286						N150 ±.25mmf
C217	1000		250288	EF-001	MFT-1000			503C-D1	
C218	800		250282						

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MAGNAVOX PART No.	NOTES
	OHMS	WATT		
R201	4700Ω			Note 1
R202	1000Ω		230104-60	
R203	3900Ω		230104-69	
R204	220K		230104-90	

ITEM No.	RATING		MAGNAVOX PART No.	NOTES
	OHMS	WATT		
R205	10K		230104-74	
R206	3900Ω		230104-69	
R207	1000Ω		230104-62	
R208	3900Ω		230104-69	

Note 1. Some versions may use 47K in this application.

COILS (RF-IF)

ITEM No.	USE	MAGNAVOX PART No.	NOTES
L201	Ant. Trans. Assy.	360769	
L202	IF Trap Coil	360763	
L203	IF Trap Coil	360764	
L204A	Ant. RF, Mixer Grid, Osc. Coils	360761-2	Channel 2
B	"	360761-3	Channel 3
C	"	360761-4	Channel 4
D	"	360761-5	Channel 5
E	"	360761-6	Channel 6
F	"	360761-7	Channel 7
G	"	360761-8	Channel 8

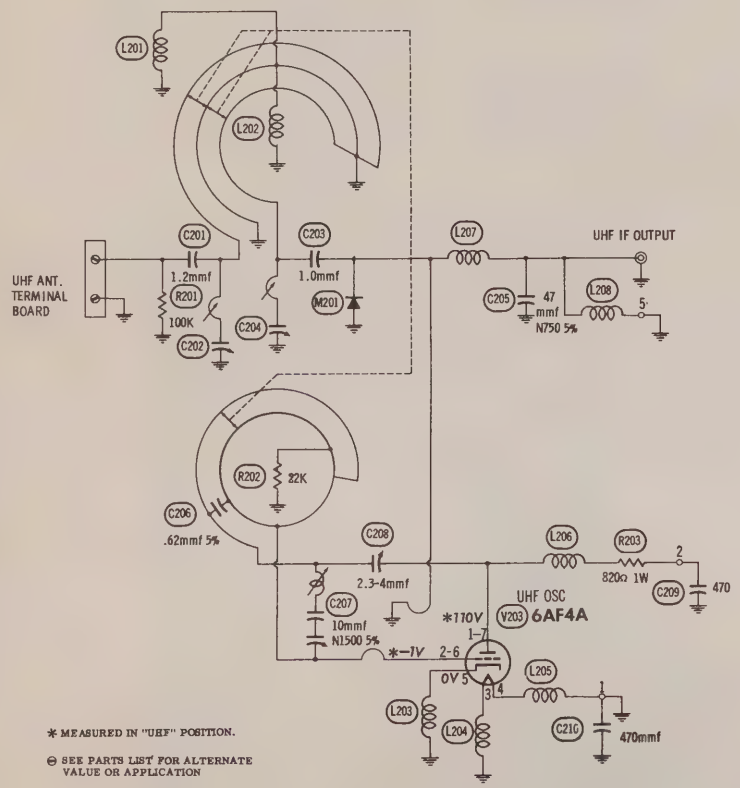
ITEM No.	USE	MAGNAVOX PART No.	NOTES
L204H	Ant., RF, Mixer Grid, Osc. Coils	360761-9	Channel 9
I	"	360761-10	Channel 10
J	"	360761-11	Channel 11
K	"	360761-12	Channel 12
L	"	360761-13	Channel 13
L205	Fil. Choke	360768	
L206	RF Choke	360766	
L207	Fine Tuning Coil	360767	
L208	Mixer Plate Coil	360765	

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V203	UHF Osc.	6AF4A	

ITEM No.	USE	TYPE	NOTES



* MEASURED IN "UHF" POSITION.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	1.2		250221-115	NPO-SI 1.0	TCZ-1		TCO-1		5TCCB-V1	
C202			250188-10							
C203	1.0		250221-114	NPO-SI 1.0	TCZ-1		TCO-1		5TCCB-V1	
C204			250188-10							
C205	47		250175-21		TCN-47		TC7-47			N750 5%
C206	.62		250221-1001							5%
C207	10		250088-140							N1500 5%
C208	2.3-4		250220-2							
C209	470		250175-8	BPD-00047	DD-471	L10T47	ED-470	UC-5347	5GA-T47	
C210	470		250175-8	BPD-00047	DD-471	L10T47	ED-470	UC-5347	5GA-T47	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MAGNAVOX PART No.	NOTES
	OHMS	WATT		
R201	100K		230104-86	
R202	22K		230104-78	

ITEM No.	RATING		MAGNAVOX PART No.	NOTES
	OHMS	WATT		
R203	820Ω	1	230145-61	

COILS (RF-IF)

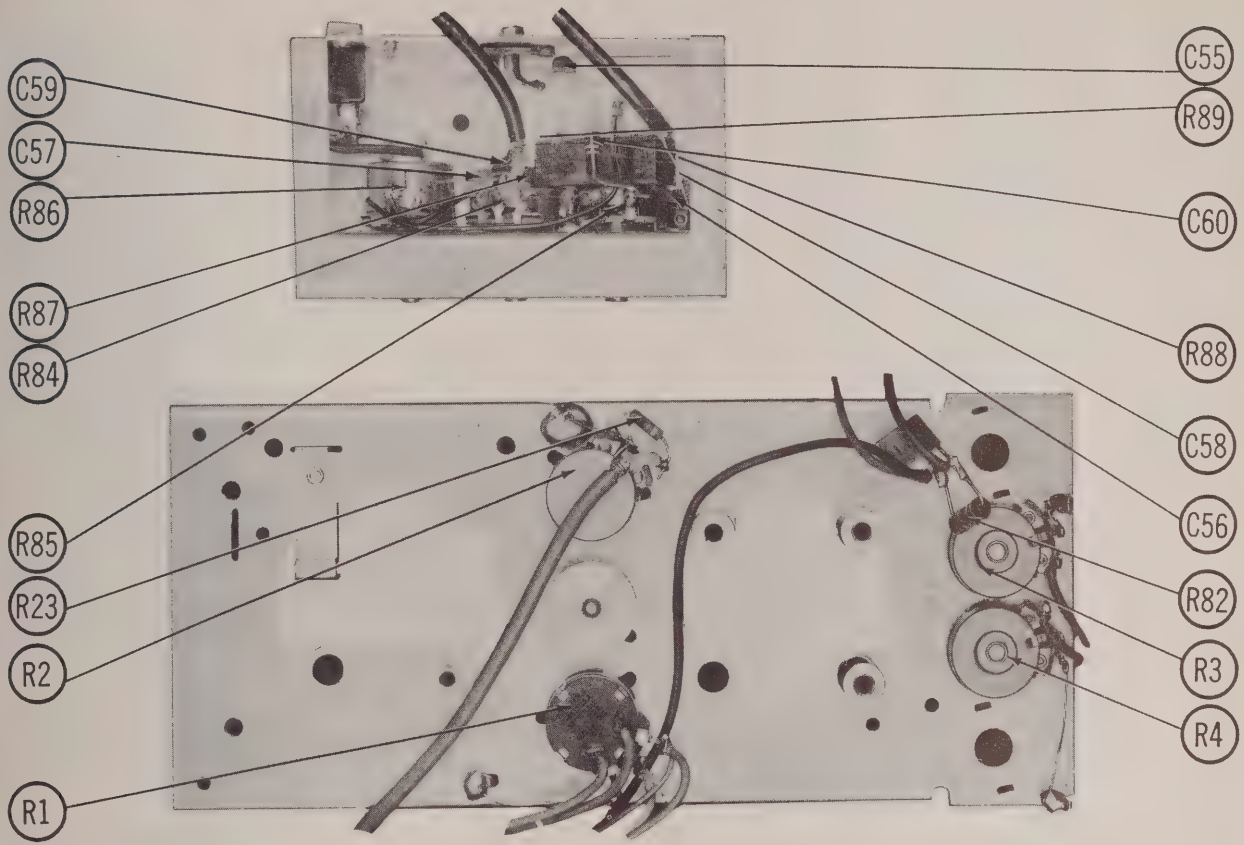
ITEM No.	USE	MAGNAVOX PART No.	NOTES
L201	RF Choke	360574-30	
L202	RF Choke	360574-30	
L203	Cathode Choke	360522-7	
L204	Fil. Choke	360574-8	

ITEM No.	USE	MAGNAVOX PART No.	NOTES
L205	Fil. Choke	360574-8	
L206	RF Choke	360574-8	
L207	RF Choke	360574-12	
L208	RF Choke	360574-50	

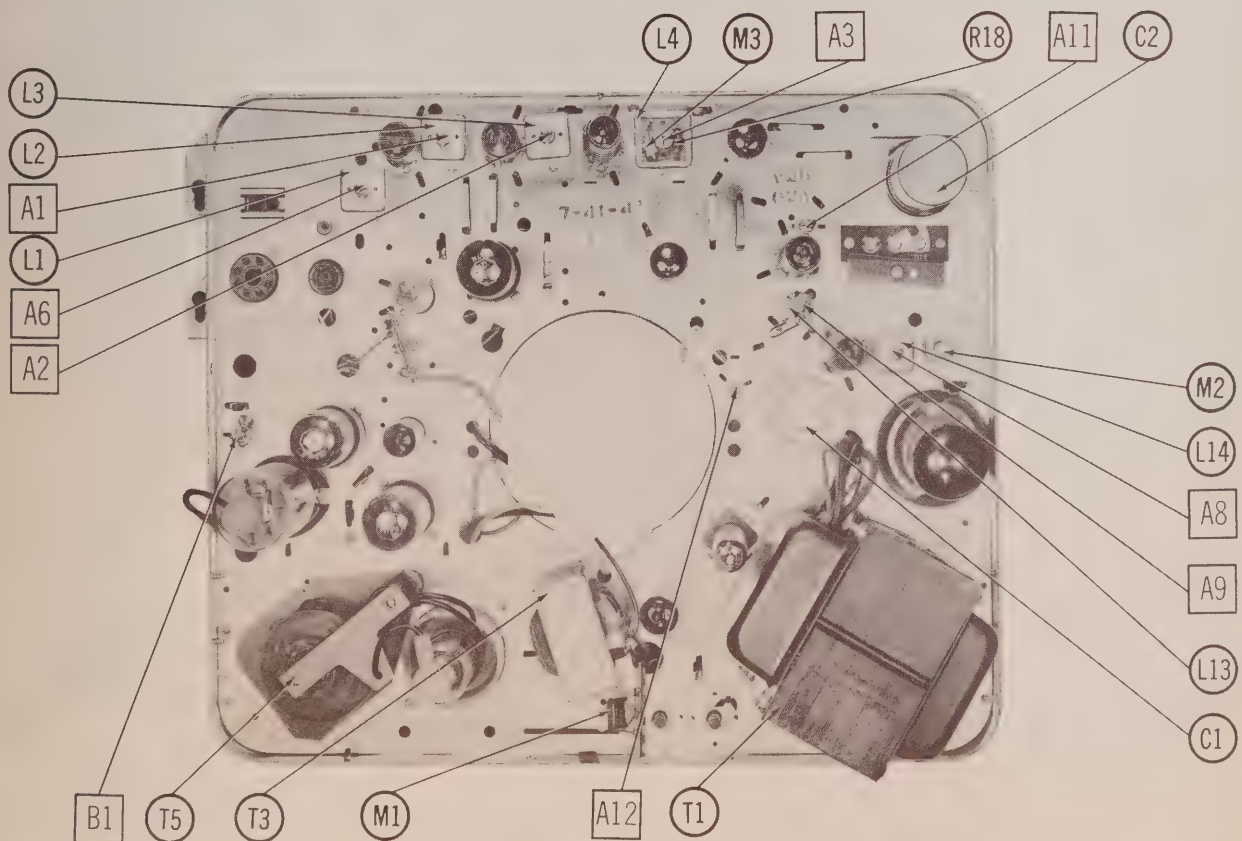
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MAGNAVOX PART No.	CBS PART No.	SYLVANIA PART No.	
M201		530036-1	1N82A	1N82A	UHF Mixer (Clip-in)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958



CONTROL PANEL



CHASSIS TOP VIEW

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	58K	47Ω	.1Ω	0Ω	††1000Ω	††1000Ω	0Ω		
V2	6BZ6	57K	47Ω	.1Ω	0Ω	††1000Ω	††1000Ω	0Ω		
V3	6CB6	.1Ω	120Ω	.1Ω	0Ω	††1000Ω	††1000Ω	0Ω		
V4	12BY7A	• 130Ω	3900Ω	0Ω	.1Ω	.1Ω	0Ω	†4800Ω	††20K	0Ω
V5	6AU6	†8000Ω	†1000Ω	.1Ω	0Ω	340K	‡150K	†1000Ω		
V6	6AU6	1.2Ω	0Ω	.1Ω	0Ω	††12K	††12K	220Ω		
V7	6DT6	3.6Ω	680Ω	.1Ω	0Ω	†270K	††6800Ω	560K		
V8	6AT6	0Ω	0Ω	0Ω	.1Ω	1.1meg	1.1meg	0Ω		
V9	6DG6GT	NC	0Ω	†270Ω	†270Ω	500K	TP	.1Ω	¶20K	
V10	12AU7	†1meg	4.7meg	0Ω	0Ω	0Ω	†4300Ω	22K	3300Ω	.1Ω
V11	6C4	NC	NC	0Ω	.1Ω	‡1.3meg	•1.6meg	0Ω		
V12	6DT5	†220Ω	NC	•550K	.1Ω	0Ω	•550K	• 380Ω	NC	†690Ω
V13	6SN7GTB	570K	†7500Ω	1300Ω	•120K	†100K	1300Ω	0Ω	.1Ω	
V14	6CD6GA	NC	.1Ω	0Ω	TP	470K	TP	0Ω	†13.5K	TOP CAP ‡24Ω
V15	6AU4GTA	TP	NC	¶1meg	NC	†0Ω	TP	.1Ω	0Ω	
V16	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡314Ω
V17	5V3	TP	¶20K	NC	18Ω	NC	16Ω	TP	¶20K	
V18	24AHP4	.1Ω	0Ω	‡420K	‡150K	NC	NC	• 240K	0Ω	
V201	6BN4	0Ω	1.2meg	0Ω	.1Ω	††1000Ω	0Ω	1.2meg		
V202	6CG8	3900Ω	††3900Ω	0Ω	0Ω	.1Ω	††1000Ω	††10K	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING MAY VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

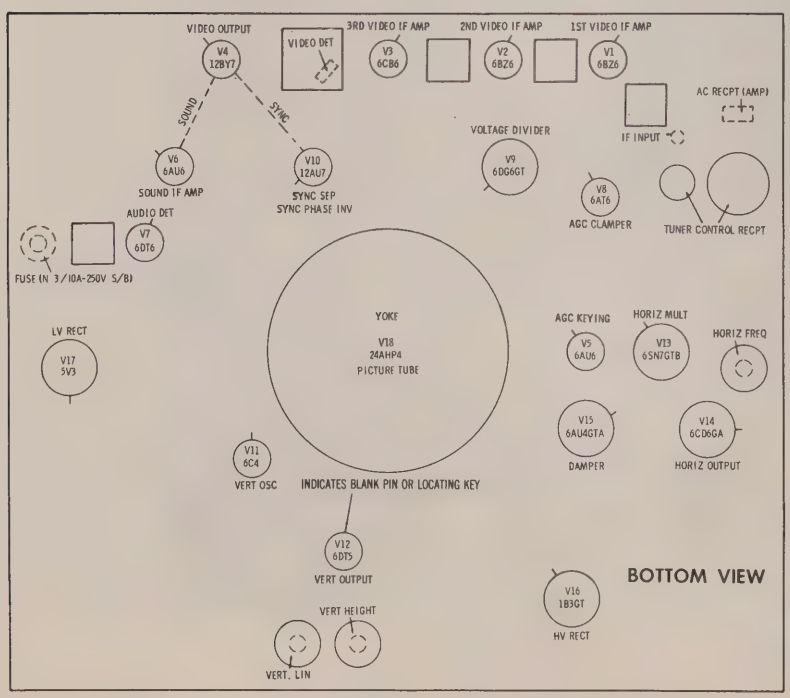
† MEASURED FROM 275V SOURCE.

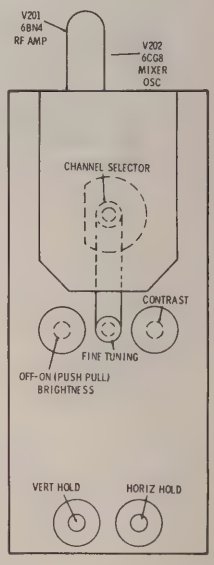
†† MEASURED FROM 135V SOURCE.

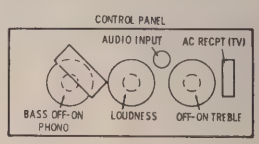
‡ MEASURED FROM PIN 3 OF V15.

NC NO CONNECTION

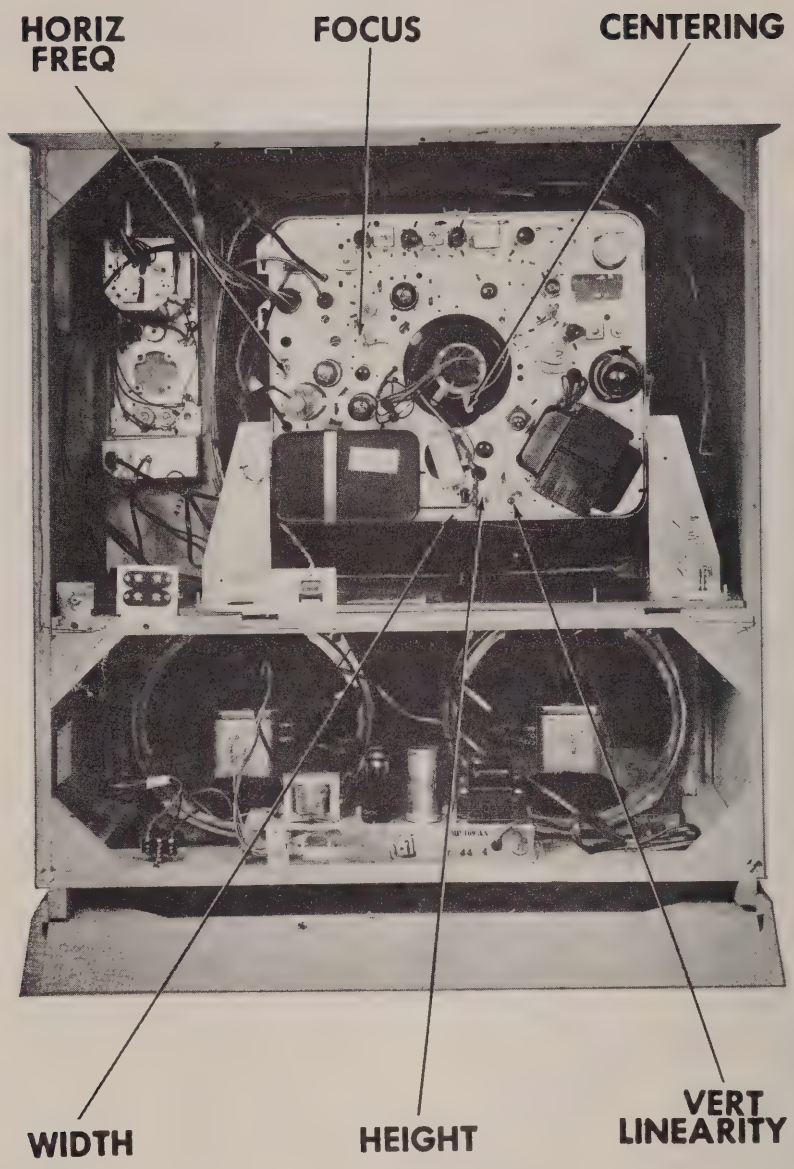
TP TIE POINT







TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Set the Horizontal Hold control to the center of its range. Adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally. Keep turning B1 in the same direction until the picture just falls out of sync. Reverse the direction of rotation until the picture just falls in sync. Rotate the Horizontal Hold control to both extreme ends of rotation. The picture should either stay in sync at both ends of rotation or should fall out of sync by an equal number of bars at each end. If either of these conditions fail to occur, repeat procedure.

Adjust the Width slug for a picture SLIGHTLY wider than necessary to fill the picture mask horizontally.

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

AIRLINE MODELS GAA-1003A, GAA-1009A

AIRLINE MODELS
GAA-1003A, GAA-1009A

TRADE NAME	Airline Model GAA-1003A, GAA-1009A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Illinois
TYPE SET	AC Operated AM Receiver with 4 Speed Automatic Record Changer
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AT6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-60 Cycles
RATING	.27 Amp. @117 Volts AC (25 Watts Less Motor)
TUNING RANGE—BROADCAST	535 KC -1620KC

AIRLINE MODELS
GAA-1003A, GAA-1009A

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400~ Mod)	Tuning gang fully open.	Across Voice Coil	A1, A2, A3, A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	1400KC	1400KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	600KC	600KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat Steps 2 & 3
4.		"	1400KC	1400KC	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FOR SERVICE INFORMATION ON RECORD CHANGER—SEE V-M 1200A—PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H499

PARTS LIST AND DESCRIPTIONS

AIRLINE
MODEL GAA-1003A

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amp.	12AT6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	1019		BBRQ44315C	WQ230		FMT-312	R2527*
B	40	150						MMT-0220	
C	20	150							
D	20	25							

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C3	.1	200		P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C4	.05	200		P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C5	.05	200		P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C6	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C7	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C8	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C9	.1	600		P288N-1	DF-104	CUB6P1	GEM-601	6TM-P1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2meg	½	412A	B-76	A47-2meg-Z	Q13-139	U55	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1orKR-1*	SWE-12	76-1	US-26	Power On-Off
R2A	500K	½	411A					Tone
B	Switch							Radio-Phono

* Use KR with CRL"red label" controls and KB with "blue label" controls.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

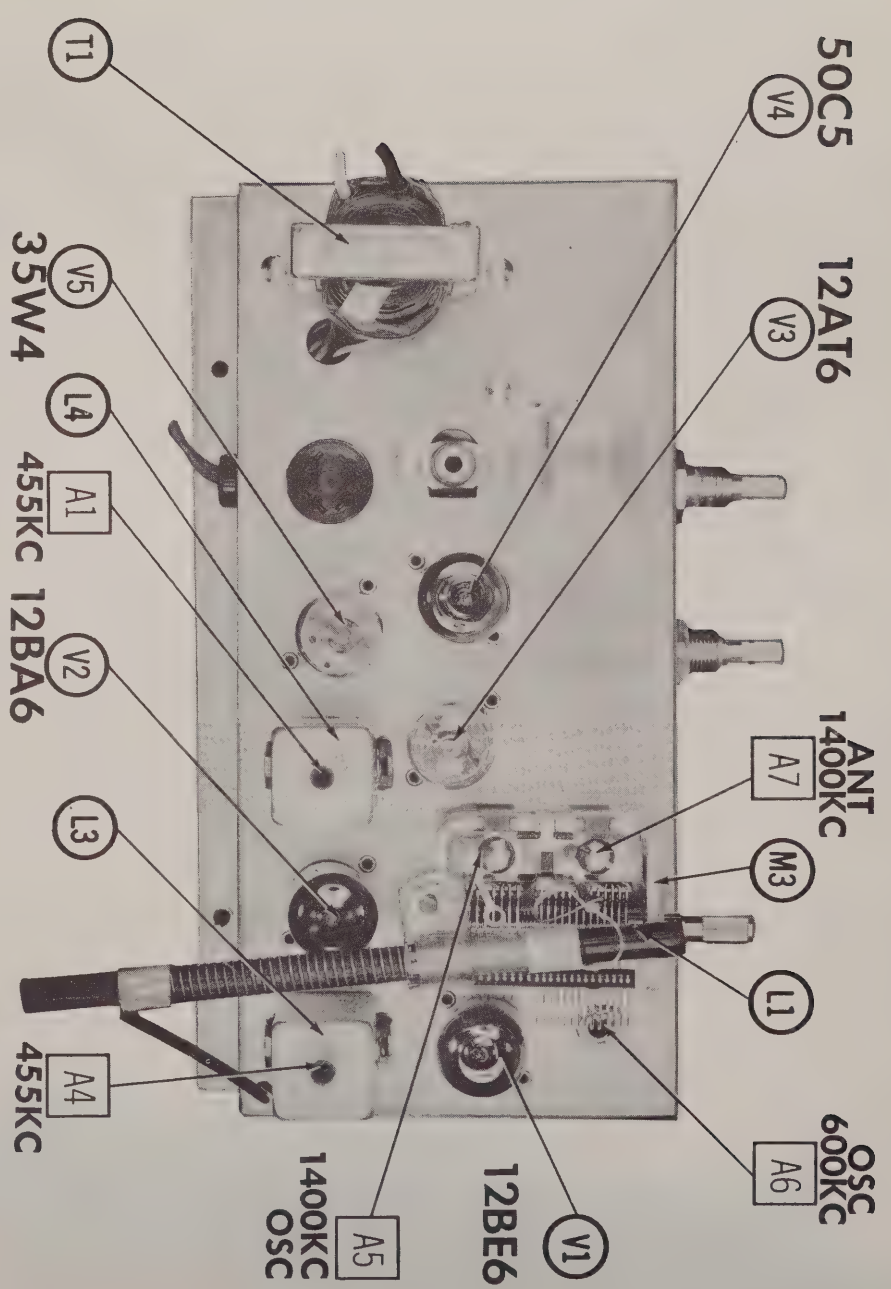
ITEM No.	RATING		AIRLINE PART No.	NOTES
	OHMS	WATT		
R3	22K			
R4	150Ω			
R5	47K			
R6	470K			
R7	2.2meg			
R8	2200Ω			

ITEM No.	RATING		AIRLINE PART No.	NOTES
	OHMS	WATT		
R9	270K			
R10	22K			
R11	150Ω			
R12	470Ω	1		
R13	1000Ω	2		
R14	27Ω		542	Fuse type.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.1	AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2400Ω	3-4Ω	1209C							
	TURNS RATIO	SEC2								
	5	:1								

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	AIRLINE PART No.	QUAM PART No.	
SP1	6"	PM	3-4Ω	2627	6A1	Parallel & Phase
SP2	3½"	PM	16Ω	2633	3A15T	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		AIRLINE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Loop Stick	1509					
L2	Osc. Coil	1408A					
L3	Input IF	1405	16-6758	BC-352	12-C1	RF-1	
L4	Output IF	1406	16-6758*	BC-353*	12-C2*	RF-2*	
	Output IF	1406A	16-6758*	BC-353*	12-C2*	RF-2*	Alternate

* Connect 100mmf externally

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AIRLINE PART No.	REPLACEMENT DATA	
K1	Audio Coup Net.	220mmf, 250mmf, 250mmf, 5000mmf, 5000mmf. 470K, 470K, 6.8meg	827	Aerovox Centralab Cornell-Dubilier Sprague	PA-113-2 PC-151 116TM2 DT-2

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	AIRLINE PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	60-48	81-TB		56	*PT-2	* Not required unless original mounting mechanism is damaged.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	AIRLINE PART No.	JENSEN PART No.	WALCO PART No.	
M2				

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M3	Tuning Cap.	1017	Ant. 34-400mmf, Osc. 13-105mmf

CABINETS & CABINET PARTS

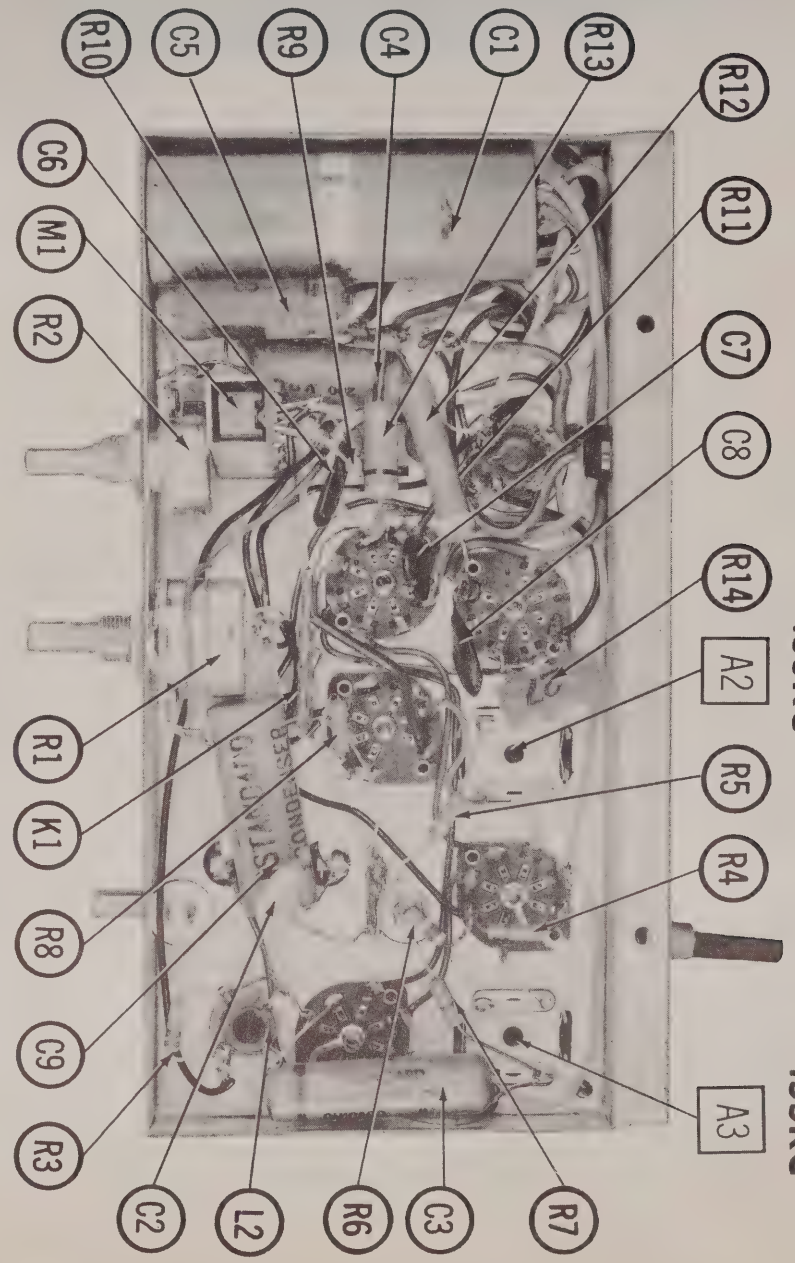
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	2445	Tuning
Knob	2446	Tone, Radio-Phono
Knob	2447	On-Off-Volume
Handle	1798	With Loops

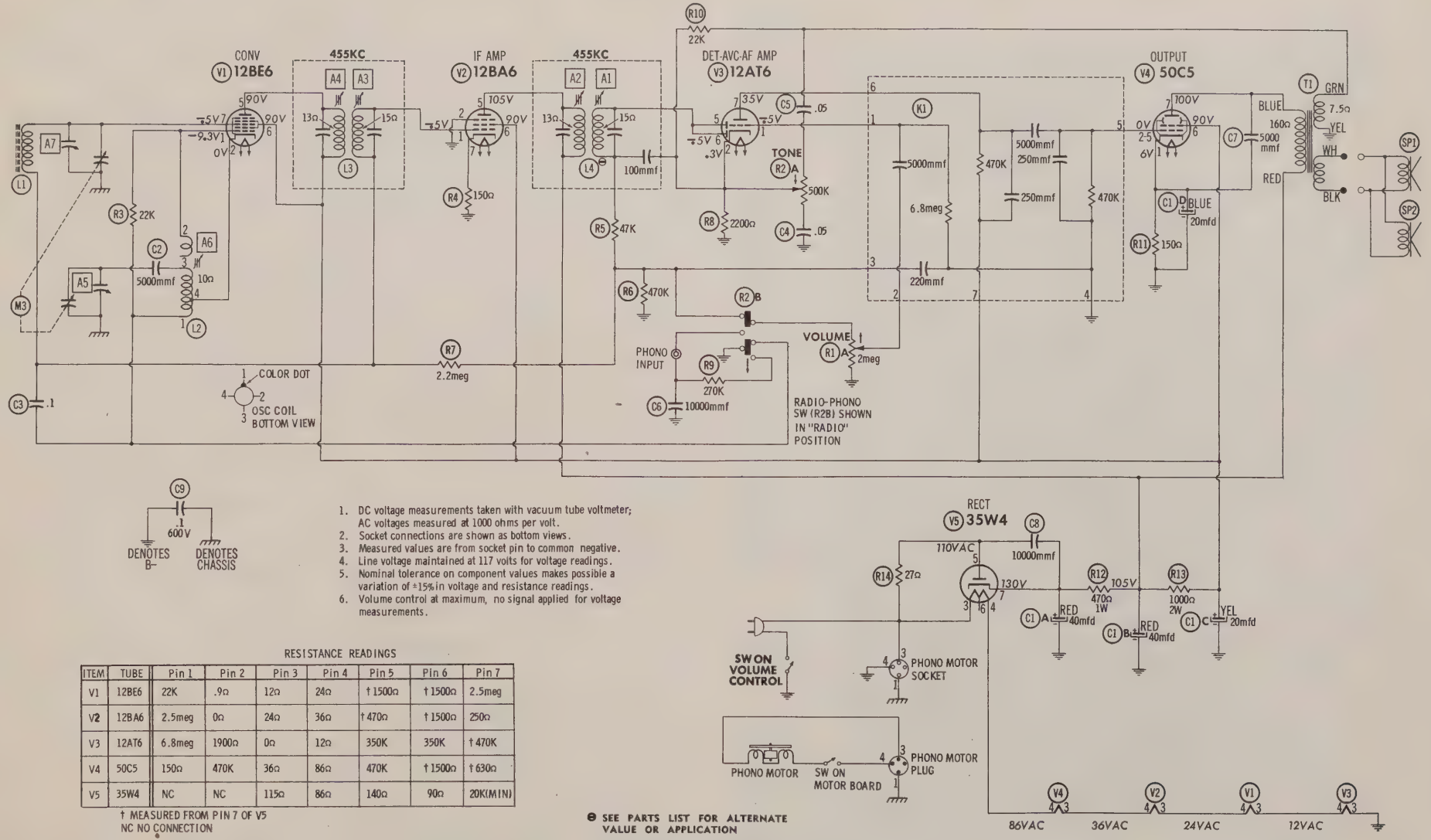
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW



AIRLINE MODEL GAA-1003A
AIRLINE MODEL GAA-1003A



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.9Ω	12Ω	24Ω	†1500Ω	†1500Ω	2.5meg
V2	12BA6	2.5meg	0Ω	24Ω	36Ω	†470Ω	†1500Ω	250Ω
V3	12AT6	6.8meg	1900Ω	0Ω	12Ω	350K	350K	†470K
V4	50C5	150Ω	470K	36Ω	86Ω	470K	†1500Ω	†630Ω
V5	35W4	NC	NC	115Ω	86Ω	140Ω	90Ω	20K(MIN)

† MEASURED FROM PIN 7 OF V5
NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

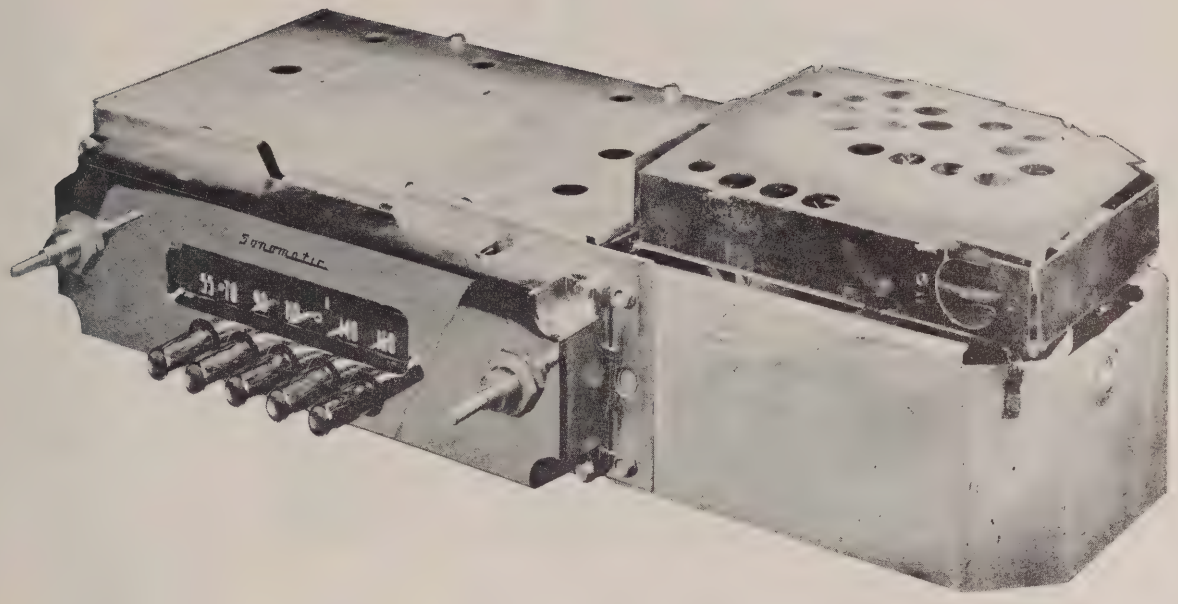
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

EIA ELECTRONIC INDUSTRIES ASSOCIATION MEMBER

BUICK MODEL 981902

BUICK MODEL 981902



TRADE NAME	Buick Model 981902 (For 1958 Buick Automobiles)
MANUFACTURER	Delco Radio Div., G. M. Corp., Kokomo, Indiana
TYPE SET	Battery Operated Custom Built AM Automobile Receiver
TUBES (Seven)	Types 12BA6 RF Amplifier, 12BE6 Converter, 12BA6 IF Amplifier, 12BF6 Det. - AVC - AF Amp., (2) 12V6GT Output, 0Z4 Rectifier
POWER SUPPLY	12 Volt Storage Battery — RATING 3.2 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	550 - 1600KC

BUICK MODEL 981902

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis.	262KC (400% Mod)	High frequency end stop	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	82mmf	High side to antenna terminal. Low side to chassis.	1615KC	"	"	A5, A6, A7	Rear of Osc. coil core (A10) should be 1 5/8" from mounting end of coil form. Adjust A5, A6, A7 for max. output.
3.	"	"	600KC	Tune to 600KC signal	"	A8, A9, A10	Adjust for maximum output.
4.	"	"	1615KC	High frequency end stop	"	A6, A7	"
5.	With radio installed in car and antenna fully extended, tune in a weak station near 1000KC and adjust A7 for maximum output.						

POINTER ADJUSTMENT

With radio tuned to a 600KC signal, adjust pointer adjusting screw so that pointer coincides with 600KC dial mark.

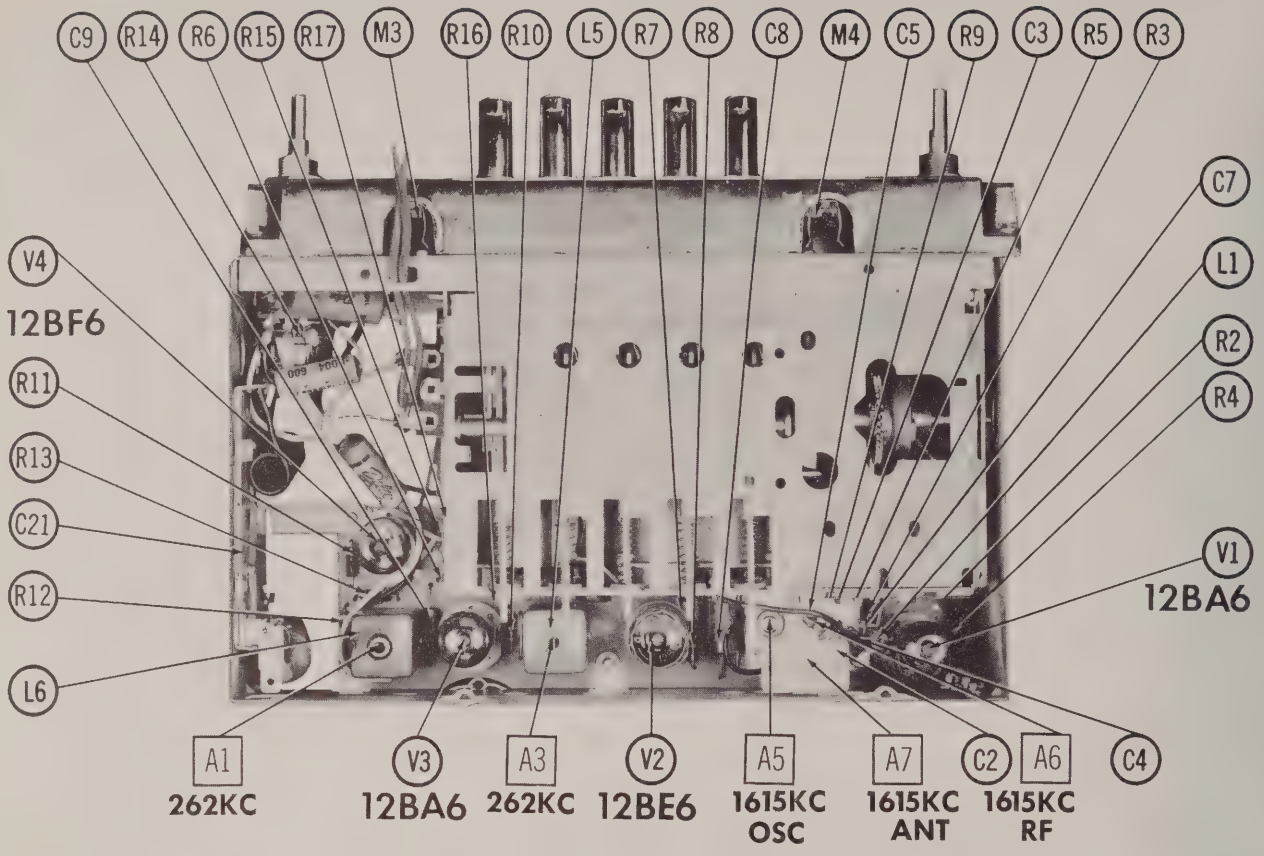
PUSHBUTTON ADJUSTMENT

1. Pull pushbutton to the left and out.
2. Tune manually to desired station.
3. Press pushbutton in firmly.
4. Repeat for remaining pushbuttons.

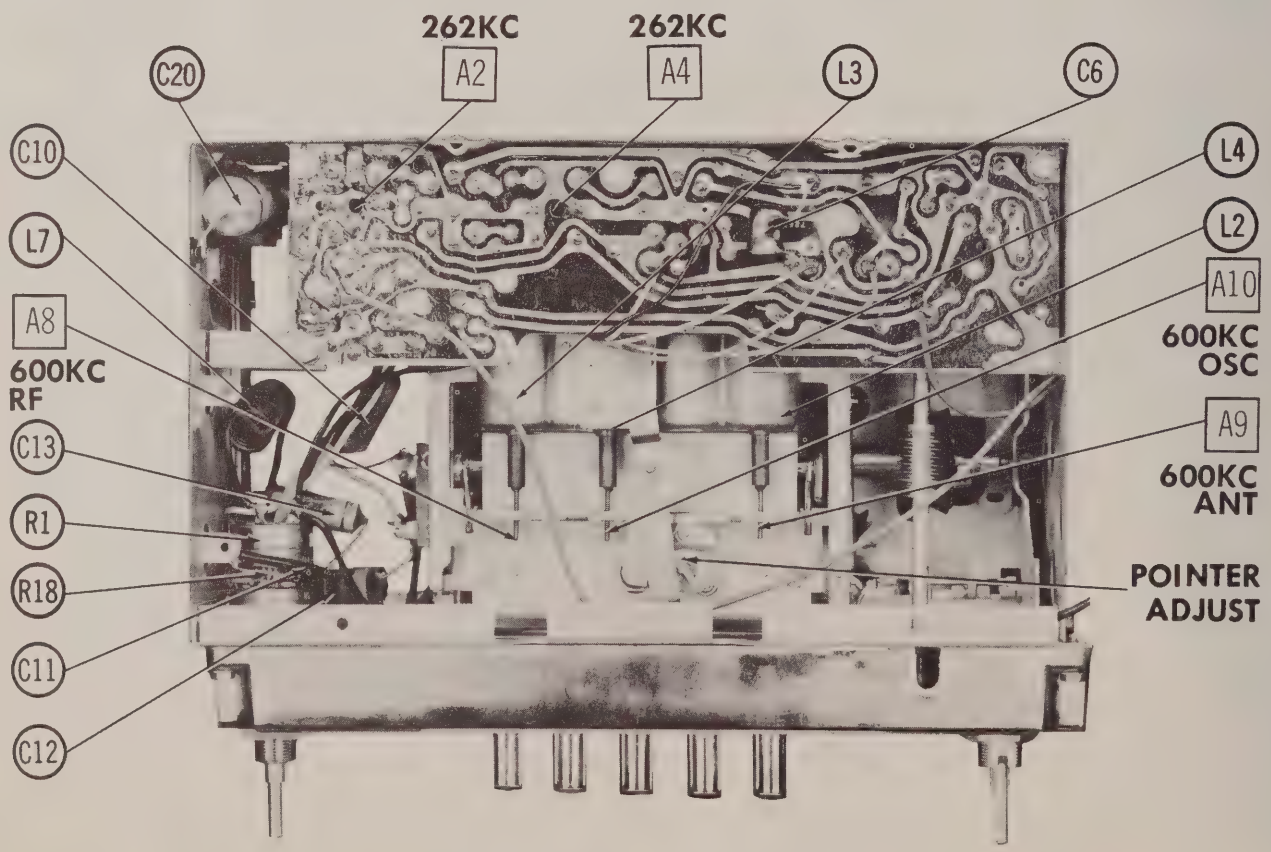
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H58I



TUNER CHASSIS - TOP VIEW



TUNER CHASSIS - BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12BA6	
V4	Det.-AVC-AF Amplifier	12BF6	
V5	Output	12V6GT	
V6	Output	12V6GT	
V7	Rectifier	0Z4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■20	400	6322	AFH3-120	C0990	FP345.8	TMT-106	T-550	TVL-3678
B	▲20	400							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA DELCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2A	7-69		7269079						
B	36								
C3	.047	200	6612	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C4	15		6361	BPD-000015	DD-150	L10Q15	UC-5315	5GA-Q15	
C5A			7268828						
B									
C									
D									
C6	200		7270129	1469-0002		1R5T2	MCE237	MS-32	5%
C7	39		6366	DI 000039	DD-390	L10Q39	UC-5439	5GA-Q39	
C8	.047	400	6612	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C9	22		6363	1468-000022	DD-220	L10Q22	UC-5422	5GA-Q22	
C10	.002	600	6628	P688N-002	D6-202	CUB6D2	GEM-622	6TM-D2	
C11	100		6371	BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
C12	.015	600	7237719	P688N-015	DD16-153	CUB6S15	GEM-6115	6TM-S15	
C13	.004	600	6630	P688N-004	D6-402	CUB6D4	GEM-624	6TM-D4	
C14	.2	400	6614	P488N-22		CUB4P22	GEM-4022	4TM-P22	
C15	100		7265995	BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
C16	.003	1000	6563	P1088N-003	DD16-302	CUB10D3	GEM-1023	10TM-D3	
C17	.007	1600	6567	P1688N-007	DD16-702	CUB16D7	GEM-1627	MB-D7	
C18	.47	100	6692	P288N-47		CUB2P47	GEM-2047	2TM-P47	
C19	.1	200	6690	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C20	.47	100	6692	P288N-47		CUB2P47	GEM-2047	2TM-P47	
C21			1221054						

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	1/2	7271329	F1-41 † R2-58 * KB-4 or KR-4	‡RTV-657C		■UE3818S	Tone Volume, Tap ⓐ 250K
B	1meg							
C	Switch							

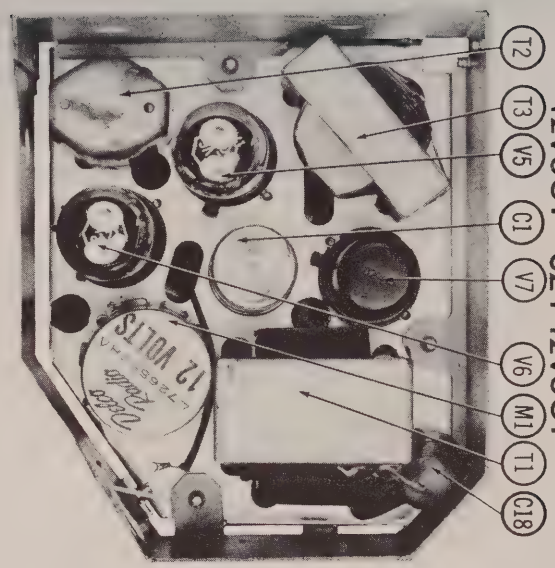
■ "STA-LOC" Equivalent, FL55A, OS1625, RU16T254, IS2250, US-41
† Use AK-28 Adaptor bushing.
* Use KR-4 on CRL "Red Label" controls and KB-4 on "Blue Label" controls.
‡ Use XB-1 Adaptor bushing.

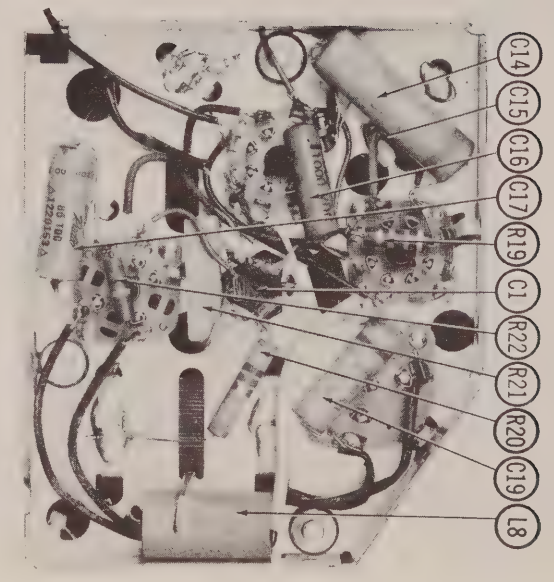
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	DELCO PART No.	NOTES
R2	2.2meg		1239	
R3	10K		1174	
R4	68Ω		1111	
R5	330K		1229	
R6	1meg		1235	
R7	100Ω		1113	
R8	22K		1215	
R9	15K		1277	
R10	270Ω		1118	
R11	1meg		1235	

POWER CHASSIS





PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	DELCO PART No.	NOTES
R12	47K		1219	
R13	3.3meg		1241	
R14	470K		1231	
R15	1meg		1235	
R16	2200Ω		1129	
R17	1000Ω		1125	
R18	56K		1220	
R19	47K	1	1259	
R20	360Ω 5%	1(WW)	7234563	
R21	1800Ω	5		①
R22	15K	1	1253	

① Mfg. recommends replacing with 2700Ω 2W (Part #1204) & 5600Ω 1W (Part #1171) in parallel.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12.6VCT @ 2.33A	500VCT @ .070A		7269118				P-6497		

TRANSFORMER (DRIVER)

ITEM No.	DC Resistance	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	1800Ω CT	1220902				A-4421			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T3	8700Ω CT	3-4Ω	7266997	Z1011 ①	A-2901 ①	AU-606 ①	A-4430	22S56 ①	S-55X ①	① Use original channel frame

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA DELCO PART No.	QUAM PART No.	NOTES
SP1	6" X 9" 6" X 9"	PM PM	3-4Ω	7269084 7267685 ①	69A2	① Used in rear seat speaker kit 981905.

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA DELCO PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Antenna Coil	7255738					6.5 Microhenries
L2	Antenna Coil	1221138					
L3	RF Coil	1221138					
L4	Osc. Coil	1221139					
L5	Input IF	1220990	16-6756	BC-317	13-PH1		
L6	Output IF	1220992		BC-320	13-PH6		
L7	"A" Lead Choke	1217846					1.4 Microhenries
L8	Hash Choke	1221077					

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA DELCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	NOTES
M1	Interrupter	12.6 VDC	115∿	7265528 ①	6330	G1602/G883	6330	① Alternate Part #8555

FUSES

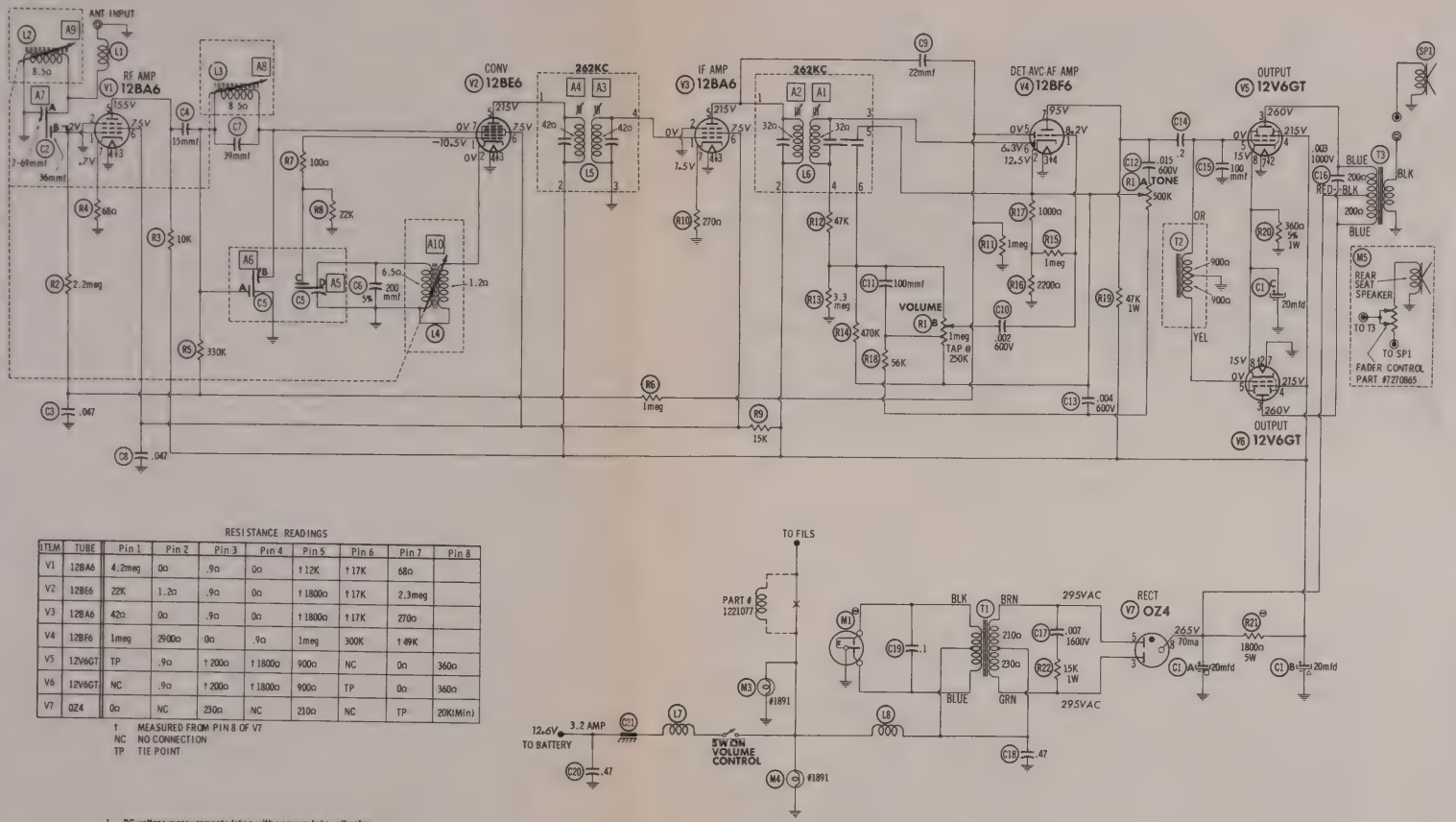
ITEM No.	TYPE	RATING	REPLACEMENT DATA DELCO PART No. FUSE	DELCO PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2		7½A 32V	455640					

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M3	Dial Lamp	456985	#1891
M4	Dial Lamp	456985	#1891
M5	Speaker Ass'y	Model 981905	(Includes Fader control Part #7270865, Knob Part #1174606, Speaker Part #7267685, Speaker Grille Part #7271698)
	Printed Board	7268814-F	

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire .....Use BELDEN No. 8885
Bonding Strap .....Use BELDEN No. 8661



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	12BA6	4.2meg	0Ω	.9Ω	0Ω	↑12K	↑17K	68Ω	
V2	12BE6	22K	1.2Ω	.9Ω	0Ω	↑1800Ω	↑17K	2.3meg	
V3	12BA6	42Ω	0Ω	.9Ω	0Ω	↑1800Ω	↑17K	270Ω	
V4	12BF6	1meg	2900Ω	0Ω	.9Ω	1meg	300K	↑49K	
V5	12V6GT	TP	.9Ω	↑200Ω	↑1800Ω	900Ω	NC	0Ω	360Ω
V6	12V6GT	NC	.9Ω	↑200Ω	↑1800Ω	900Ω	TP	0Ω	360Ω
V7	OZ4	0Ω	NC	230Ω	NC	210Ω	NC	TP	20K(Min)

↑ MEASURED FROM PIN 8 OF V7
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Ⓔ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

GRUNDIG MAJESTIC
MODEL "Concert Boy" 57

GRUNDIG MAJESTIC
MODEL "Concert Boy" 57

TRADE NAME	Grundig Majestic Model Concert Boy 57
SUPPLIER	Majestic International Sales Corp., 743 W. LaSalle St., Chicago 10, Illinois
TYPE SET	AC-Battery FM-BC-SW Portable Receiver
TUBES (Nine)	Types DF97 FM Converter, DF97 1st FM IF Amplifier, 1AB6/DK96 BC SW Converter, DF97 2nd FM-1st AM IF Amplifier, DF97 3rd FM-2nd AM IF Amplifier, DF97 4th FM IF Amplifier, 1AH5/DAF96 AM Det.-AVC-AF Amp., 3C4/DL96 Output (Battery), EL95 Output (AC)
POWER SUPPLY	110-120 Volts AC-60 Cycles (or) 1.5 Volts "A" Supply & 90 Volts "B" Supply
RATING	.2 Amp. @ 117 Volts AC (or) 62MA @ 1.5 Volts DC & 8.8MA @ 90 Volts DC (16 Watts)
TUNING RANGES	BROADCAST 510-1620KC SHORTWAVE 5.9-16MC FREQ. MOD. 88-108MC MARINE BAND 1.5-4.2MC

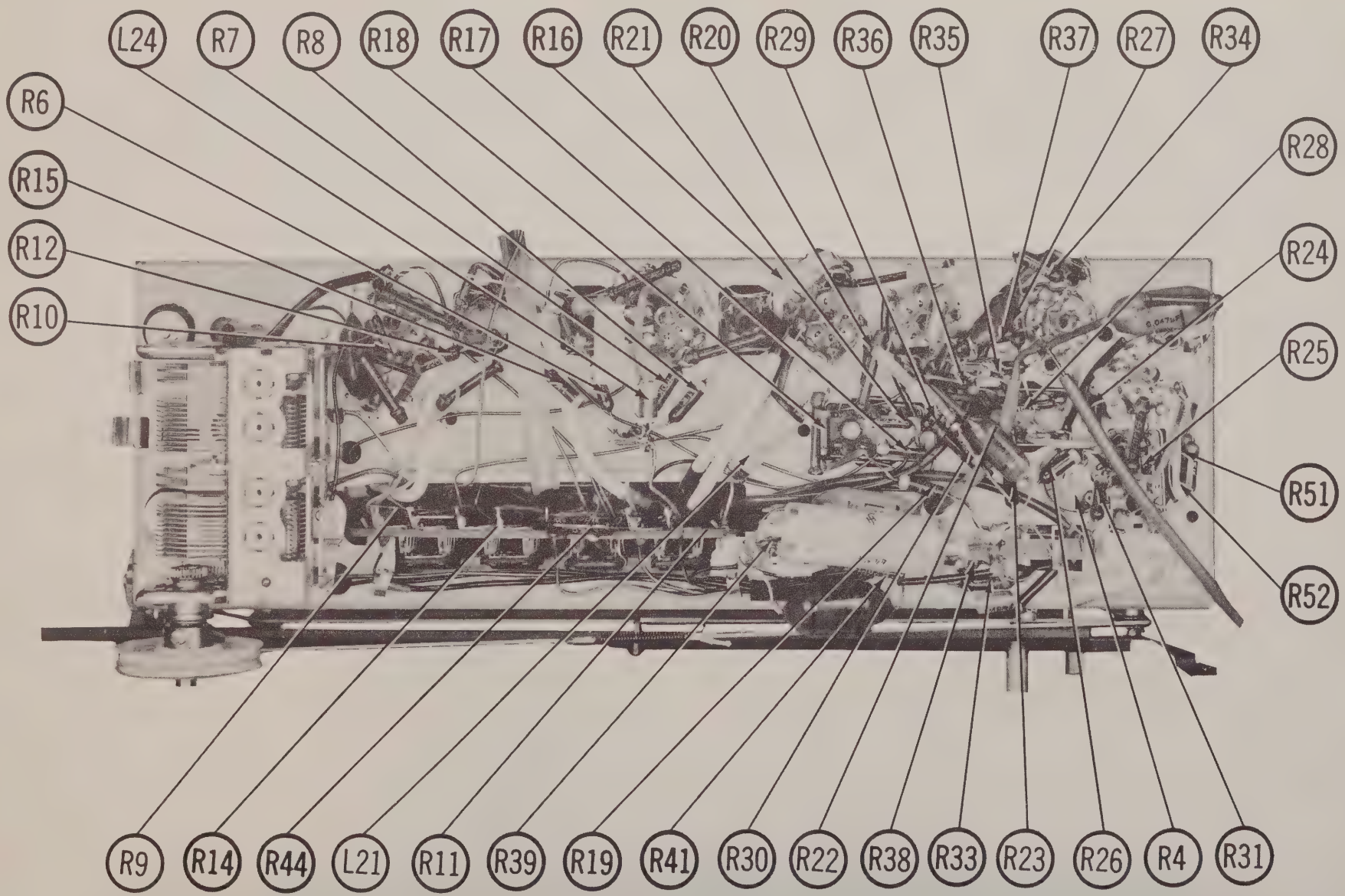
The "A" supply storage battery can be recharged by connecting the line cord to an AC receptacle and pressing the "Charge" button (receiver turned off). Approximately 24 hours are required to charge the completely discharged cell.

GRUNDIG MAJESTIC
MODEL "Concert Boy" 57

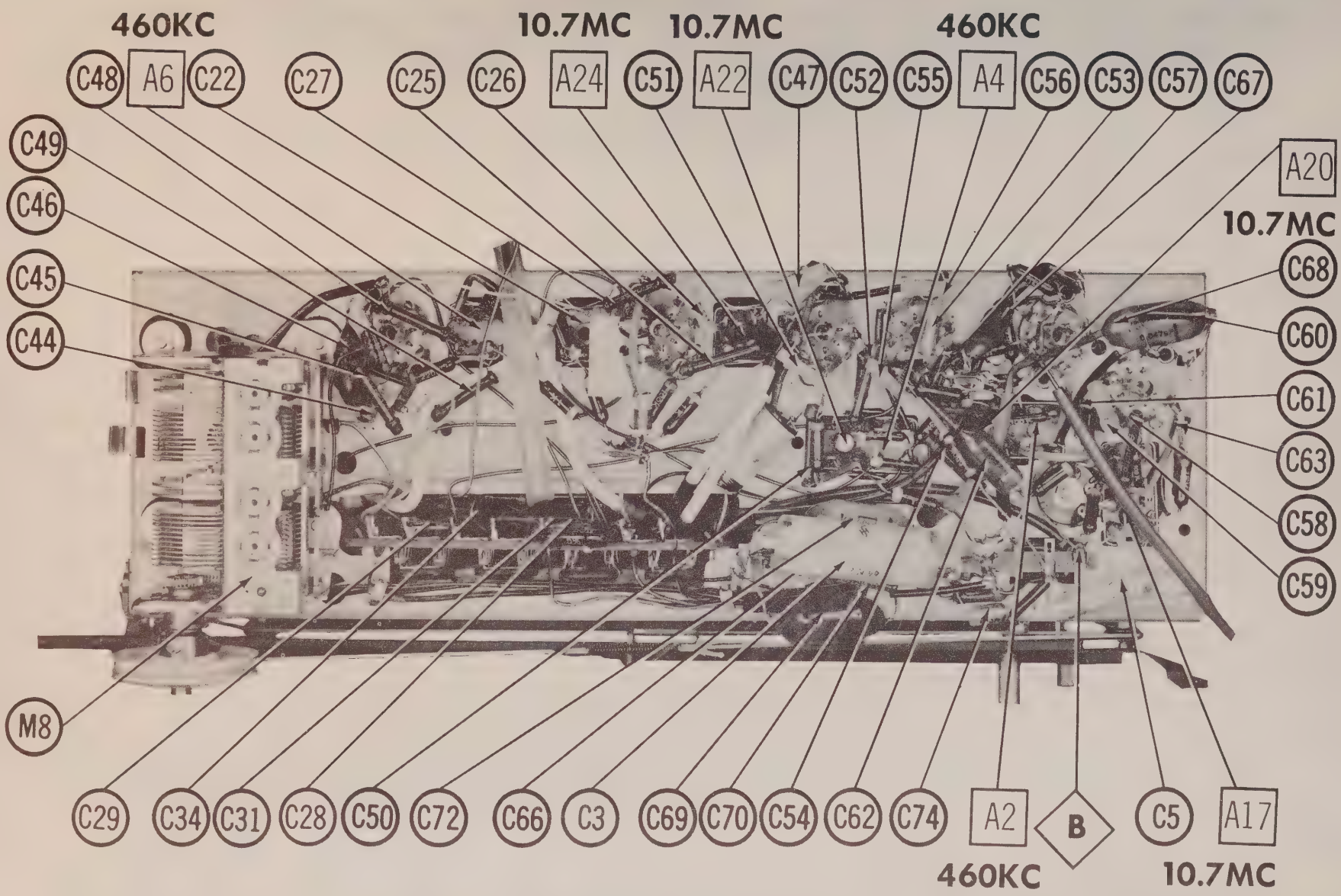
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H431



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

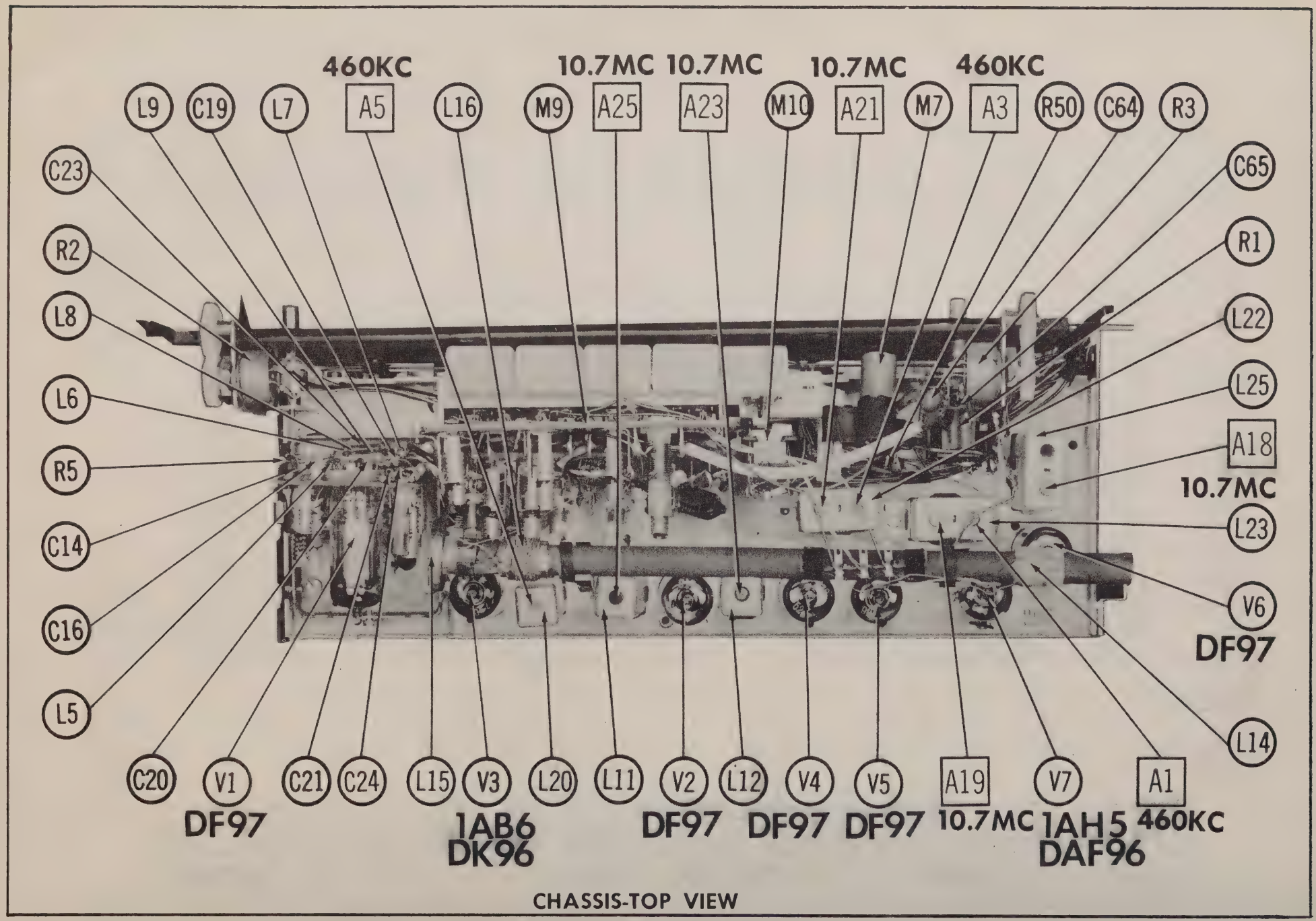


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

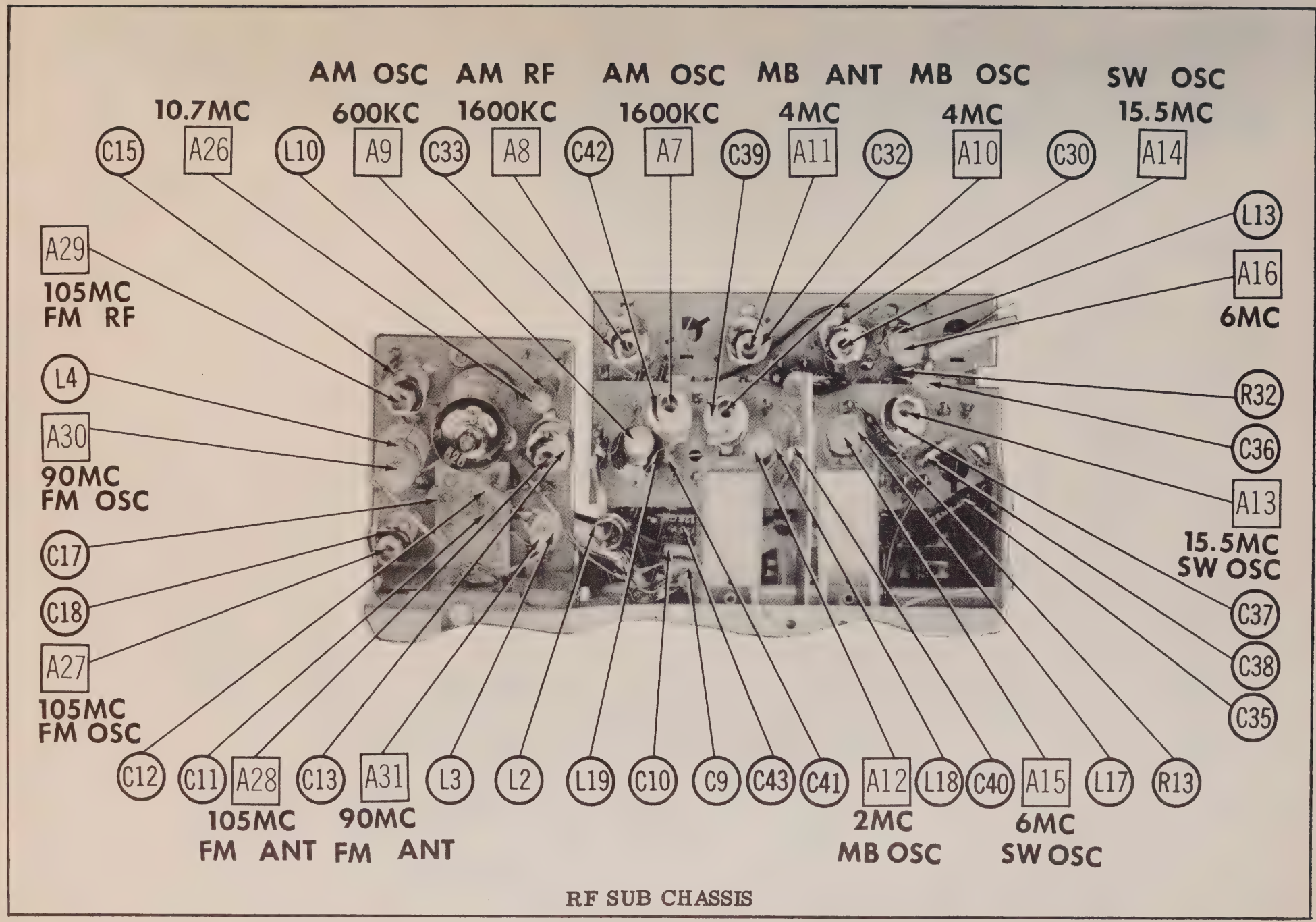
GRUNDIG MAJESTIC
MODEL CONCERT BOY 57

FOLDER 6

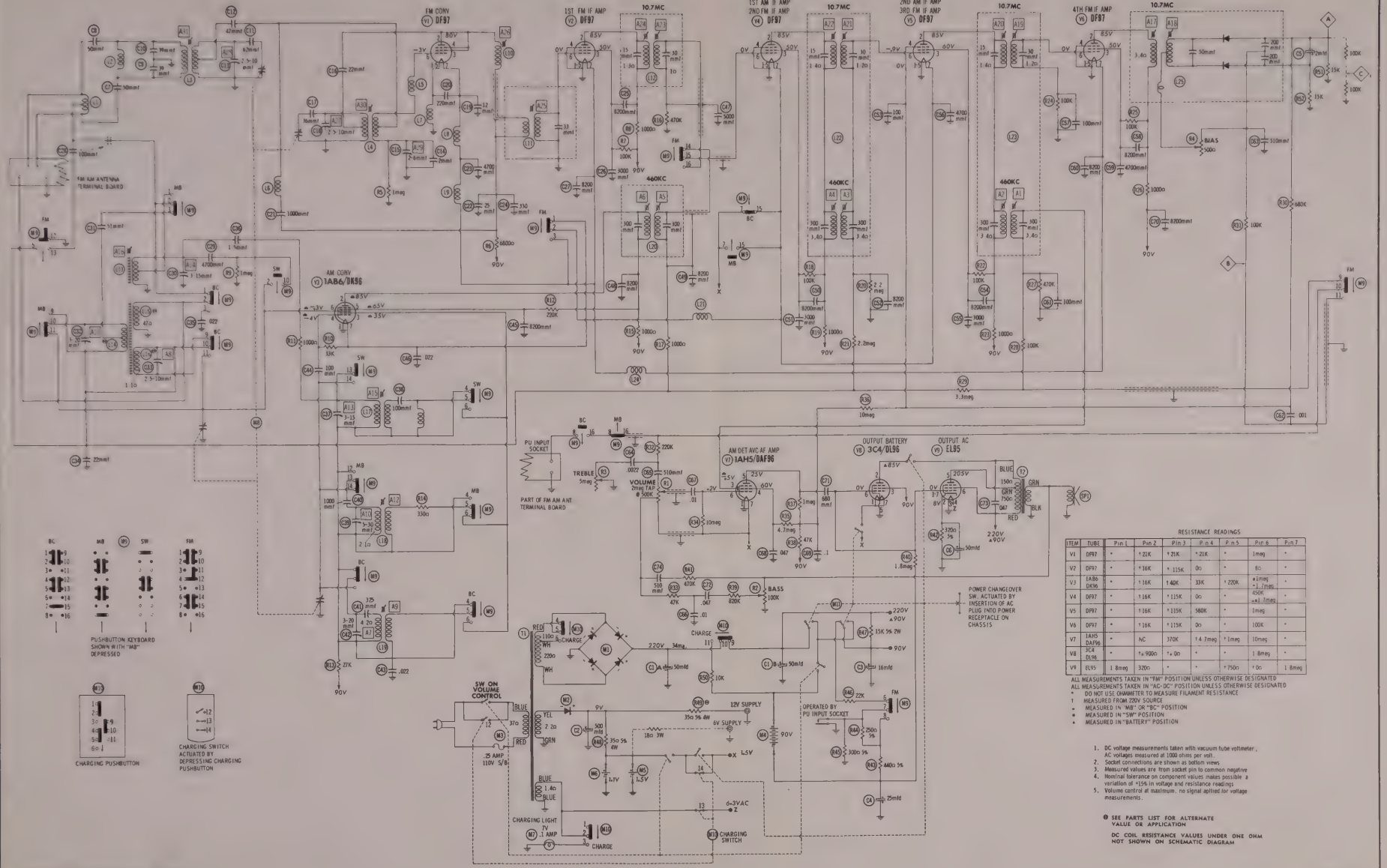
PAGE 3



CHASSIS-TOP VIEW



RF SUB CHASSIS


FM CONV V1 DF97
1ST FM IF AMP V2 DF97
10.7MC
1ST AM IF AMP 2ND FM IF AMP V4 DF97
2ND AM IF AMP 3RD FM IF AMP V5 DF97
4TH FM IF AMP V6 DF97
460KC
AM CONV V3 1AB6/DK96
AM DET AVC AF AMP V7 1AH5/DAF96
OUTPUT BATTERY V8 3C4/DL96
OUTPUT AC V9 EL95
FM AM ANTENNA TERMINAL BOARD
PU INPUT SOCKET
PART OF FM AM ANT TERMINAL BOARD
TREBLE 5meg
VOLUME 2meg TAP @ 500K
BASS 100K
POWER CHANGEOVER SW. ACTUATED BY INSERTION OF AC PLUG INTO POWER RECEPTACLE ON CHASSIS
CHARGE
SW ON VOLUME CONTROL
12V SUPPLY
6V SUPPLY
OPERATED BY PU INPUT SOCKET
CHARGING LIGHT
CHARGING SWITCH
PUSHBUTTON KEYBOARD SHOWN WITH "MB" DEPRESSED
CHARGING PUSHBUTTON
CHARGING SWITCH ACTUATED BY DEPRESSING CHARGING PUSHBUTTON
BIAS
220V 34ma.
6.3VAC
.25 AMP 110V S/B

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	DF97	*	†21K	†21K	†21K	*	1meg	*
V2	DF97	*	†16K	†115K	0Ω	*	8Ω	*
V3	1AB6 DK96	*	†16K	†40K	33K	†220K	●1meg ▪1.1meg	*
V4	DF97	*	†16K	†115K	0Ω	*	450K ▪▪1.1meg	*
V5	DF97	*	†16K	†115K	980K	*	1meg	*
V6	DF97	*	†16K	†115K	0Ω	*	100K	*
V7	1AH5 DAF96	*	NC	370K	†4.7meg	†1meg	10meg	*
V8	3C4 DL96	*	†▪900Ω	†▪0Ω	*	*	1.8meg	*
V9	EL95	1.8meg	320Ω	*	*	†750Ω	†0Ω	1.8meg

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
ALL MEASUREMENTS TAKEN IN "AC-DC" POSITION UNLESS OTHERWISE DESIGNATED
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE
† MEASURED FROM 220V SOURCE
▪ MEASURED IN "MB" OR "BC" POSITION
● MEASURED IN "SW" POSITION
▲ MEASURED IN "BATTERY" POSITION

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings
5. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

404-6

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd	High side to pin 6 (grid) of DK96 (V3). Low side to chassis.	460KC (400∿ Mod)	BC	Tuning gang fully open	Across voice coil	A1, A2, A3, A4, A5, A6	Adjust for maximum output.
2.		Loop	1600KC	"	1600KC	"	A7, A8	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	600KC	"	600KC	"	A9	"
4.	200mmf	High side to AM antenna term. Low side to chassis.	4MC	MB	4MC	"	A10, A11	Adjust for maximum output.
5.	"	"	2MC	"	2MC	"	A12	"
6.	"	"	15.5MC	SW	15.5MC	"	A13, A14	"
7.	"	"	6MC	"	6MC	"	A15, A16	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	200mmf	High side to pin 6 (grid) of DF97 (V6). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point (A). Common to chassis.	A17	Adjust for maximum deflection.
9.	"	"	"	"	"	DC probe to point (B). Common to chassis.	A18	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
10.	"	High side to pin 6 (grid) of DF97 (V1). Low side to chassis.	"	"	"	DC probe to point (A). Common to chassis.	A19, A20, A21, A22, A23, A24, A25, A26	Adjust for maximum deflection.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
8.	200mmf	High side to pin 6 (grid) of DF97 (V6). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point (A). Low side to chassis.	A17	Disconnect stabilizing capacitor C5. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
9.	"	"	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A18	Reconnect capacitor C5. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A17 for maximum amplitude and straightness of crossover lines.
10.	"	High side to pin 6 (grid) of DF97 (V1). Low side to chassis.	"	"	"	Vert. Amp. to point (A). Low side to chassis.	A19, A20, A21, A22, A23, A24, A25, A26	Disconnect capacitor C5. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1. Reconnect capacitor C5.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
11.	270Ω Carbon Resistor	Acrpss FM antenna terminals with 270Ω in high side.	105MC	FM	105MC	DC probe to point (A). Common to chassis.	A27, A28 A29	Adjust for maximum deflection.
12.	"	"	90MC	"	90MC	"	A30, A31	"

FIG. 1

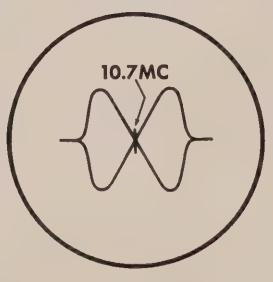
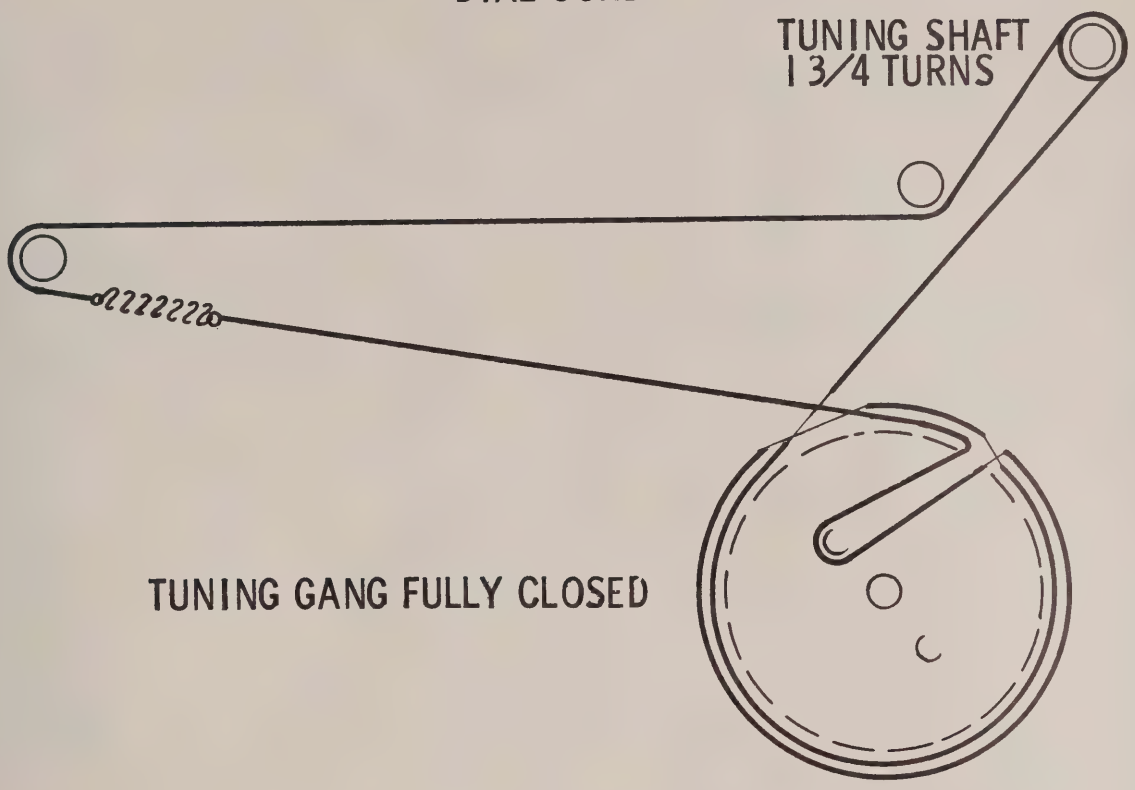
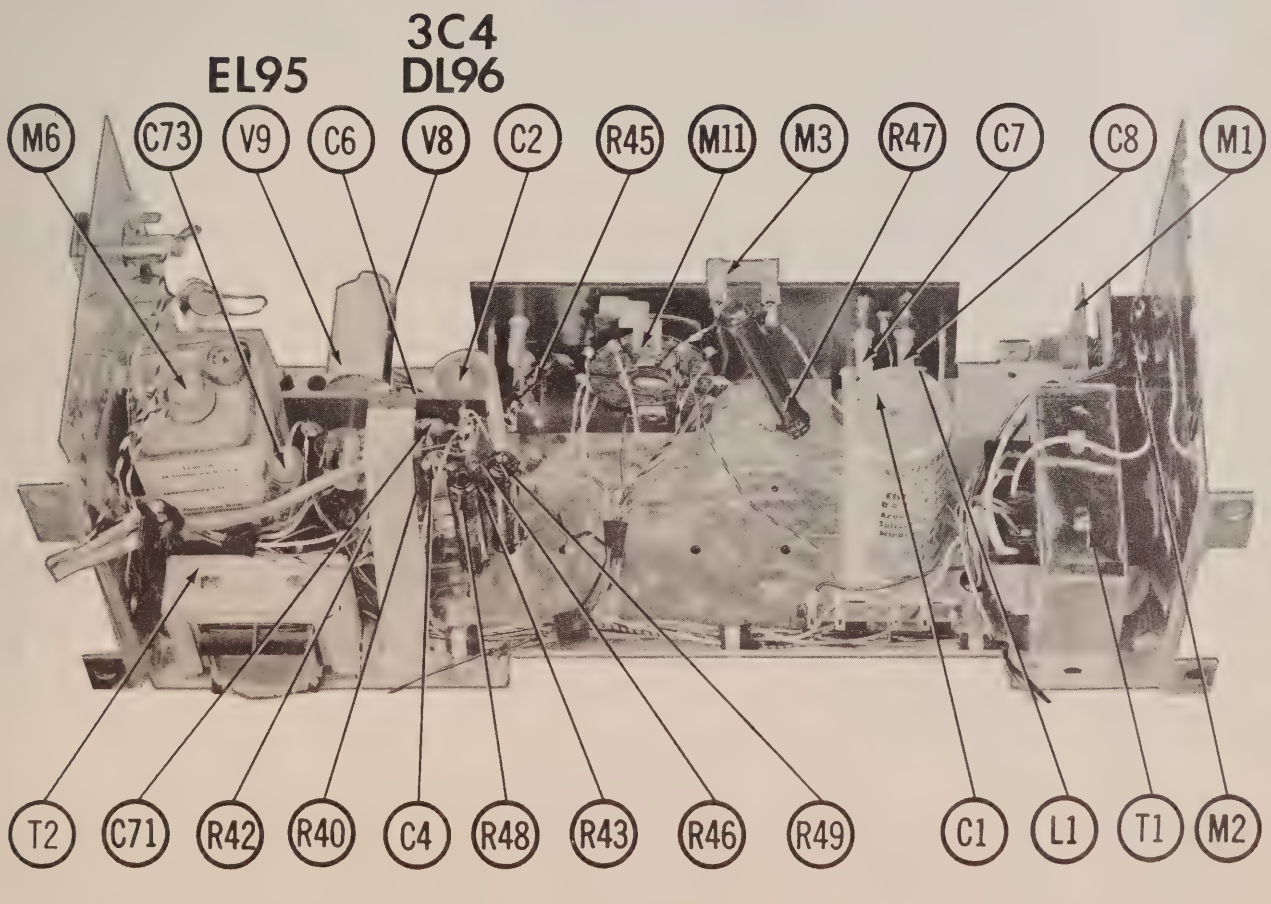


FIG. 2





POWER CHASSIS

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM Converter	DF97	
V2	1st FM IF Amplifier	DF97	
V3	AM Converter	1AB6/DK96	
V4	2nd FM-1st AM IF Amp.	DF97	
V5	3rd FM-2nd AM IF Amp.	DF97	
V6	4th FM-IF Amplifier	DF97	
V7	AM Det.-AVC-AF Amp.	1AH5/DAF96	
V8	Output (Battery)	3C4/DL96	
V9	Output (AC)	EL95	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Grundig Majestic PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	385							R2582 *
B	50	385							
C2	500	15		PRS150V500	BR5001	TC1505	TD-500-15	MTH-1550	TVA-1162
C3	16	165		PRS250V16	BR1625	TC54	TD-16-250	MT-2516	TVA-1507
C4	25	15		PRS25V25	BBR25-25	TC26	TD-25-25	MT-0225	TVA-1205
C5	2	80		PRS450V2	BR245		TD-2-450	MT-4502	TVA-1701
C6	50	15		PRS25V50	BBR50-25	TC29	TD-50-25	MT-0250	TVA-1206

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Grundig Majestic PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C7	50			SI 50	D6-500	LT6Q5	UC-545	5GA-Q5	
C8	50			SI 50	D6-500	LT6Q5	UC-545	5GA-Q5	
C9	39			SI 39	D6-390	LT6Q39	UC-5439	5GA-Q39	
C10	39			SI 39	D6-390	LT6Q39	UC-5439	5GA-Q39	
C11	62								
C12	47			SI 47	D6-470	LT6Q47	UC-5447	5GA-Q47	
C13	2.5-10								
C14	2								
C15	2-6								
C16	22			SI 22	D6-220	LT6Q22	UC-5422	5GA-Q22	
C17	36								
C18	2.5-10								
C19	12			SI 12	D6-120	LT6Q12	UC-5412	5GA-Q12	
C20	220			SI 220	D6-221	LT6T22	UC-5322	5GA-T22	
C21	1000			SI 1000	D6-102	LT6D1	UC-521	5GA-D1	
C22	25			SI 25	D6-250	LT6Q25	UC-5425	5GA-Q25	
C23	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C24	330			1468-00033	D6-331	5W5T33	UC-5333	1FM-333	
C25	8200								
C26	3000			SI 3000	D6-302	LT6D3	UC-523	5GA-D3	
C27	8200								
C28	100			1468-0001	D6-101	5W5T1	UC-531	1FM-31	
C29	4700			SI 4700	D6-472	LT6D47	UC-4700	5GA-D47	
C30	3-15								
C31	51								
C32	3-20								
C33	2.5-10								
C34	22			1468-000022	D6-220	5W5Q22	UC-5422	5GA-Q22	
C35	.022	125		P288N-022	DD-203	CUB2S22	GEM-4122	2TM-S22	
C36	1.5			NPO-DI 1.5	DTZ-1R5	C10V15C	ZT-5515	5TCCB-V15	
C37	3-15								
C38	100			1468-0001	D6-101	5W5T1	UC-531	1FM-31	
C39	5-30								
C40	1000			1467-001	D6-102	1W5D1	UC-521	1FM-21	
C41	325								
C42	3-20								
C43	.022	125		P288N-022	DD-203	CUB2S22	GEM-4122	2TM-S22	
C44	100			1468-0001	D6-101	5W5T1	UC-531	1FM-31	
C45	8200								
C46	.022	125		P288N-022	DD-203	CUB2S22	GEM-4122	2TM-S22	
C47	5000			SI 5000	D6-502	LT6D5	UC-525	5GA-D5	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Grundig Majestic PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C48	8200								
C49	8200								
C50	8200								
C51	3000			SI 3000	D6-302	LT6D3	UC-523	5GA-D3	
C52	8200								
C53	100			1468-0001	D6-101	5W5T1	UC-531	1FM-31	
C54	8200								
C55	3000			SI 3000	D6-302	LT6D3	UC-523	5GA-D3	
C56	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C57	100			1468-0001	D6-101	5W5T1	UC-531	1FM-31	
C58	8200								
C59	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C60	8200								
C61	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C62	.001	125		P288N-001	D6-102	CUB6D1	GEM-621	6TM-D1	
C63	510								
C64	.0022	125		P288N-0022	D6-222	CUB6D22	GEM-6222	6TM-D22	
C65	510								
C66	.01	125		P288N-01	D6-103	CUB2S1	GEM-211	2TM-S1	
C67	.01	125		P288N-01	D6-103	CUB2S1	GEM-211	2TM-S1	
C68	.047	125		P288N-047	DF-503	CUB2S47	GEM-2147	2TM-S47	
C69	.1	125		P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C70	8200								
C71	680			SI 680	D6-681	LT6T68	UC-5368	5GA-T68	
C72	.047	125		P288N-047	DF-503	CUB2S47	GEM-2147	2TM-S47	
C73	.047	500		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C74	510								

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Grundig Majestic PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	½	0470-015					Volume, Tap ⓐ 500K
B	Switch							
R2	100K	½	0470-090					Treble
R3	5meg	½	0470-016					Bass
R4	500Ω	½	NR-4552					Bias

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Grundig Majestic PART No.	NOTES
R5	1meg			
R6	6800Ω			
R7	100K			
R8	1000Ω			
R9	1meg			
R10	33K			
R11	1000Ω			
R12	220K			
R13	27K			
R14	330Ω			
R15	1000Ω			
R16	470K			
R17	1000Ω			
R18	100K			
R19	1000Ω			
R20	2.2meg			
R21	2.2meg			
R22	100K			
R23	1000Ω			
R24	100K			
R25	100K			
R26	1000Ω			
R27	470K			
R28	100K			

ITEM No.	RATING OHMS	RATING WATT	Grundig Majestic PART No.	NOTES
R29	3.3meg			
R30	680K			
R31	100K			
R32	220K			
R33	47K			
R34	10meg			
R35	4.7meg			
R36	10meg			
R37	1meg			
R38	47K			
R39	820K			
R40	1.8meg			
R41	470K			
R42	320Ω 5%			
R43	440Ω 5%			
R44	250Ω 5%			
R45	300Ω 5%			
R46	22K			
R47	15K 5%	2		
R48	35Ω 5%	4		
R49	35Ω 5%	4		Note 1
R50	10K			
R51	15K			
R52	15K			

Note 1. Not used for 6 Volt DC operation.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	Grundig Majestic PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .2A	200V Tap @ 140V @ .034A	6.3V @ .2A	BV9060-019						
	SEC. 3	SEC. 4	SEC. 5							
	8.8V @ .230A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Grundig Majestic PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	12K Tap @ 9000Ω	3-4Ω	BV9048-016							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Grundig Majestic PART No.	QUAM PART No.	
SP1	5" X 7"	PM	3-4Ω	0459-000/22	57A21	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Grundig Majestic PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Coil	HFBV2088/I					
L2	IF Trap Coil	HFBV1994/I	19-1000	BC-561	4602		1 Microhenry
L3	FM Ant. Trans.	9226-029					
L4	FM Osc. Coil	9214-003					
L5	RF Choke	9238-025					.94 Microhenry
L6	RF Choke	HFBV1830	19-1001	BC-562	4604		1.6 Microhenry
L7	Fil. Choke	HFBV1898	19-1001	BC-562	4604		1.6 Microhenry
L8	Fil. Choke	HFBV1898	19-1001	BC-562	4604		1.6 Microhenry
L9	Fil. Choke	HFBV1898	19-1001	BC-562	4604		1.6 Microhenry
L10	1st FM IF Pri.	9226-005					
L11	1st FM IF Sec.	7202-203					
L12	2nd FM IF	7202-201					
L13	SW Ant. Coil	9231-018					
L14	MB Ant. Coil	9234-010					Note 1
L15	BC Ant. Coil Pri.	9234-011					Note 1
L16	BC Ant. Coil Sec.	9234-013					Note 1
L17	SW Osc. Coil	9231-010					
L18	MB Osc. Coil	9207-008					
L19	BC Osc. Coil	HFBV1648					
L20	1st AM IF	0451-165					
L21	Fil. Choke	HFBV1872					
L22	3rd FM IF 2nd AM IF	7203-303					
L23	4th FM IF 3rd AM IF	7203-308					
L24	Fil. Choke	HFBV1955/I					3.3 Microhenries
L25	Ratio Det.	7203-202					

Note 1. Part of Loop Stick Assembly (Part #1054-188).

PARTS LIST AND DESCRIPTIONS (Continued)

RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	Grundig Majestic PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.034A	B250C30/50		60-9150 ①③	D-64 ②	① Selenium Type
M2	.230A	E14C350	1126 ①	A1H ①	3N26-1H1-RV ① 10M ②	② Silicon Type ③ Two Required

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Grundig Majestic PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3	Slo-Blo	.25A 110V						

BATTERIES

ITEM No.	VOLTAGE	Grundig Majestic PART No.	REPLACEMENT DATA								NOTES
			BURGESS		EVEREADY		MALLORY		RAY-O-VAC		
			"A"	"B"	"A"	"B"	"A"	"B"	"A"	"B"	
M4 M5 M6	90V 1.5V 1.1V	1028-070 ①	2R	N60	950	490	M-13		2LD	204	① Rechargeable "A" Supply

MISCELLANEOUS

ITEM No.	PART NAME	Grundig Majestic PART No.	NOTES
M7	Dial Lamp		7V .1A
M8	Tuning Cap.	9653-405	4 Gang (AM Sections: Ant. 25-380mmf, Osc. 18-347mmf)
M9	Switch Ass'y	7421-002	Pressbutton (Slide Type)
M10	Switch	7421-410	Charge (Slide Type)
M11	Switch	7690-037	Power Changeover (Single Wafer Rotary)
	Pointer	1028-014	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial	1054-115	
Knob	9616-024	On-Off-Volume
Knob	9616-025	Tuning, With Red Dot
Antenna	1054-192	Telescopic Whip Type
Pressbutton	0470-085	5 Used.

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

HARMAN-KARDON
MODEL A-120 (Melody II)

HARMAN-KARDON
MODEL A-120 (Melody II)

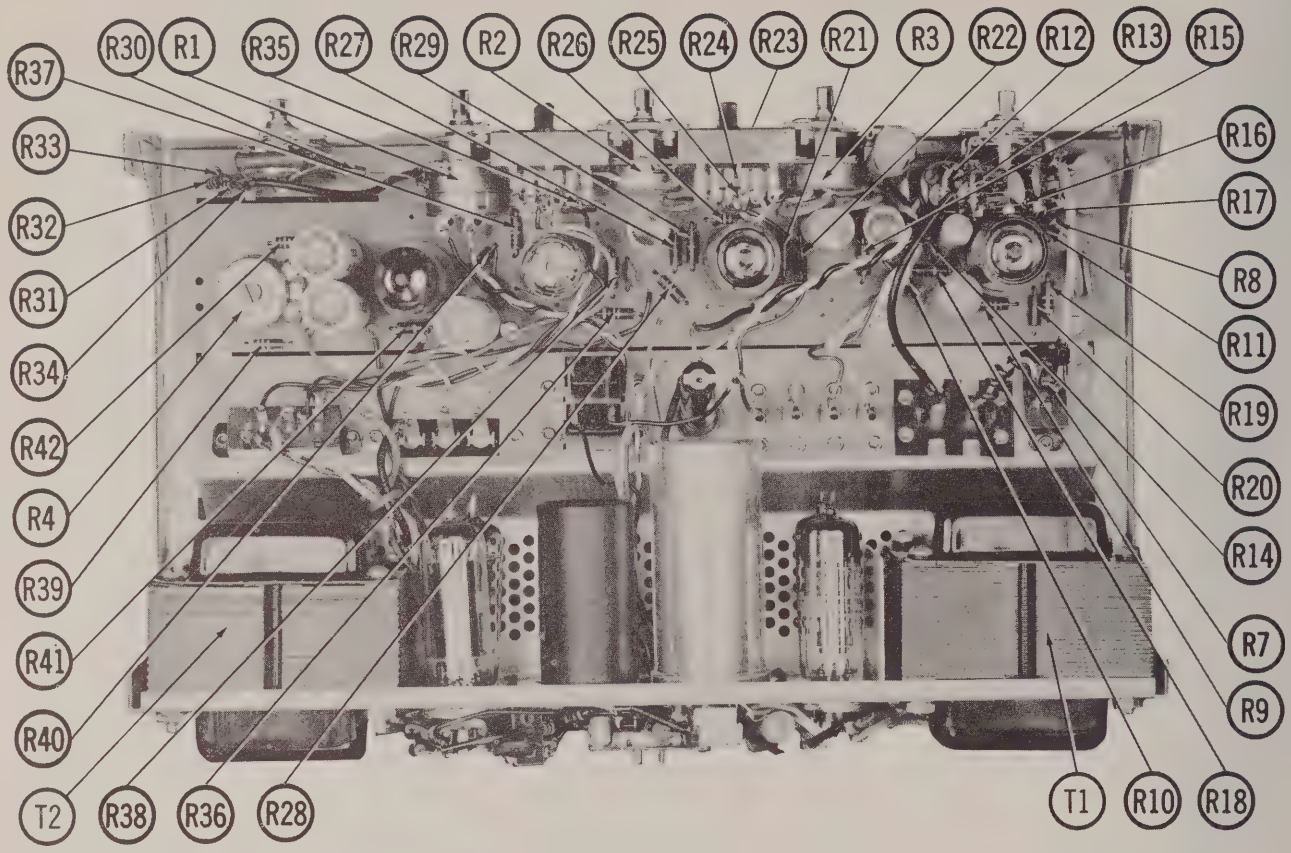
HARMAN-KARDON
MODEL A-120 (Melody II)

TRADE NAME	Harman-Kardon Model A-120 (The Melody II)
MANUFACTURER	Harman-Kardon, Inc., 520 Main St., Westbury, L.I., N.Y.
TYPE SET	AC Operated 6 Channel 20 Watt Audio Amplifier
TUBES (Eight)	Types 12AX7/ECC83 Preamplifier, 12AX7/ECC83 Cath. Follower-AF Amp., 12AV6 AF Amplifier, 12AT7 Driver, (2) 12AB5 Output, (2) 6X4 Rectifier
POWER SUPPLY	105-125 Volts AC-60 Cycles RATING .8 Amp @117 Volts AC (83 Watts)

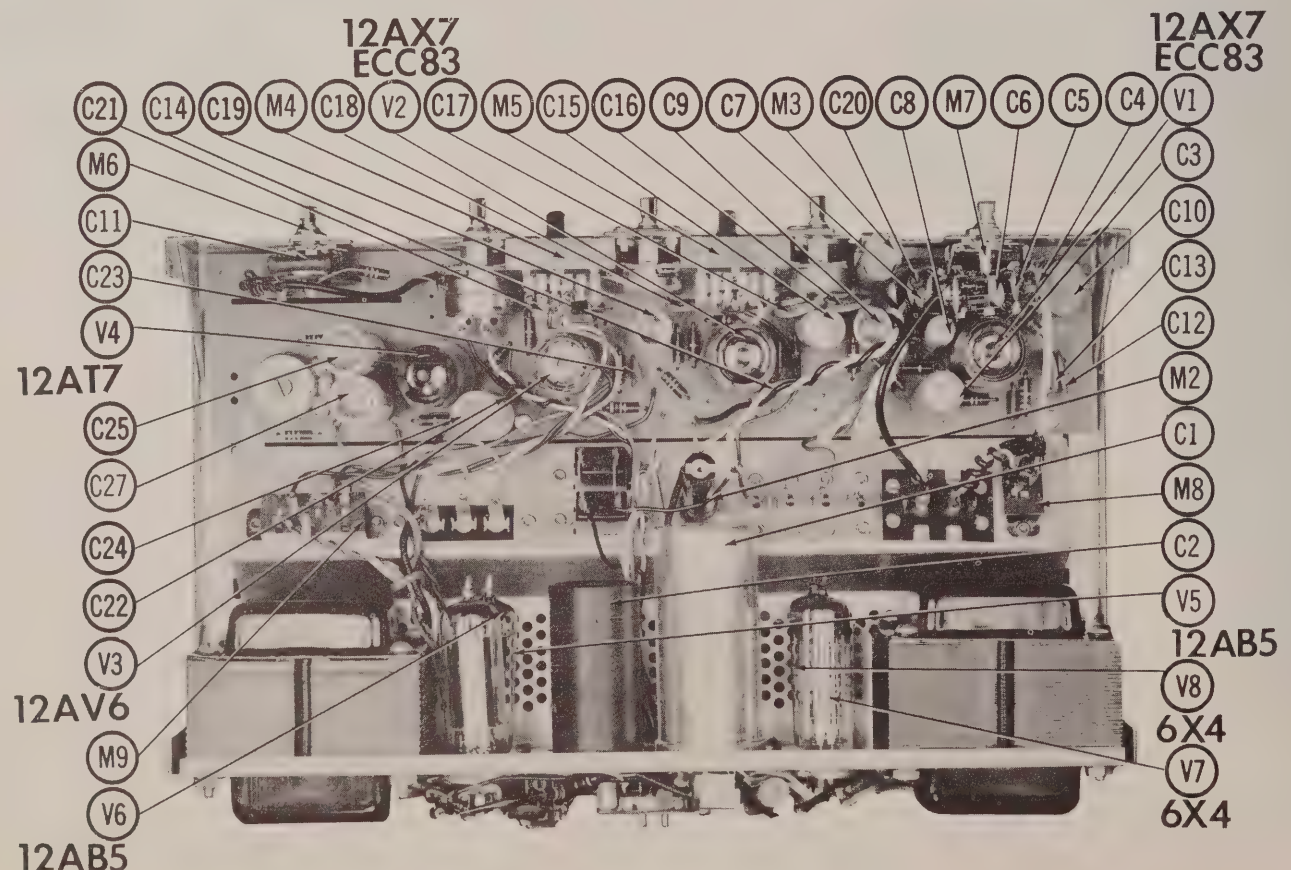
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H478



CHASSIS TOP VIEW



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	Preamplifier	12AX7/ECC83
V2	Cath. Follower-AF Amp.	12AX7/ECC83
V3	AF Amplifier	12AV6
V4	Driver	12AT7

ITEM No.	USE	TYPE
V5	Output	12AB5
V6	Output	12AB5
V7	Rectifier	6X4
V8	Rectifier	6X4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Harman-Kardon PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	475	JE1021710	AFH3-50-05	C0372	FP396.1	TMT-47	Q-075	TVL-3842
B	▲20	475					TD-20-500		
C	■20	475							
C2	50	150	JE1021711	AFH1-18	A0200	FP115	TMS-20	S-080	TVL-1415
C3	10	150		PRS150V10	BBR10-150	TC42	TD-10-150	MT-1510	TVA-1406

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

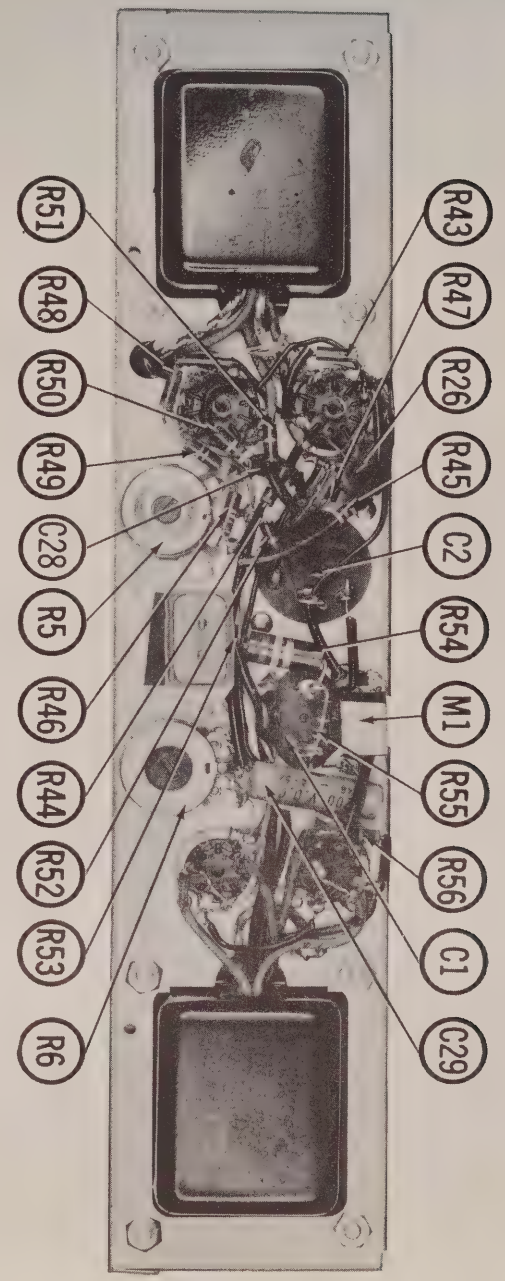
ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	Harman-Kardon PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	1000					HVB30D1			10%
C5	1000					HVB30D1			10%
C6	1000					HVB30D1			10%
C7	270				MD-271	L10T27		5TCC-T27	10%
C8	.05	200		P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C9	.05	400		P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C10	4700								10%
C11	4700								10%
C12	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C13	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C14	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C15	.1	200		P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C16	3900								10%
C17	3900								10%
C18	100			N750-D1100	DTN-100	C10T1U	NT-531	5TCU-T1	N750 10%
C19	.05	400		P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C20	3900								10%
C21	.1	200		P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C22	270			SI 270	D6-271	LT6T27	UC-5327	5GA-T27	
C23	47			N750-D147	DTN-47	C10Q47U	NT-5447	5TCU-Q47	N750
C24	.22	400		P488N-22		CUB4P22	GEM-4022	4TM-P22	
C25	.22	400		P488N-22		CUB4P22	GEM-4022	4TM-P22	
C26	1000	2000		HVD-30-1000	DD30-102	HVB20D1	DC3021	20GA-D1	①
C27	.22	400		P488N-22		CUB4P22	GEM-4022	4TM-P22	
C28	1000	2000		HVD-30-1000	DD30-102	HVB20D1	DC-3021	20GA-D1	①
C29	.05	200		P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	①

① Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Harman-Kardon PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	RV1021636					Loudness, Tap@500K
B	Switch							
R2	500K	½	RV1021634					Treble, Tap@100K
R3	1meg	½	RV1021635					Bass
R4	15K	½	RV1021725					Signal Balance
R5A	15K	½	RV1021708	AB-22	A47-15K-S	B11-118	TA153L	Bias Balance
B	Shaft			AK-1	FKS-1/4	TM1-Kit	Not Req	
R6A	500Ω	½	RV1021709	AB-4	A47-500-S	B11-103	TA52L	Hum Balance
B	Shaft			AK-1	FKS-1/4	TM1-Kit	Not Req.	

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Harman-Kardon PART No.	NOTES
R7	100K			Note 1
R8	47K			
R9	56K			
R10	560K			
R11	820Ω			Note 2
R12	68K			
R13	56K			Note 3
R14	680K			Note 4
R15	270K			
R16	2.2meg			
R17	1meg			
R18	1500Ω			
R19	470K			
R20	2.2meg			
R21	1meg			
R22	1500Ω			
R23	100K			
R24	100K			
R25	470K			
R26	100K			
R27	1000Ω			
R28	270K			
R29	1500Ω			
R30	56K			
R31	56K			
R32	56K			
R33	180K			
R34	390K			
R35	470K			
R36	470K			
R37	1200Ω			
R38	68K			
R39	47K			
R40	27K			
R41	1meg			
R42	47K			
R43	1000Ω			
R44	150K			
R45	47K			
R46	27K			Note 3
R47	1000Ω			Note 3
R48	1000Ω			
R49	150K			
R50	47K			
R51	1000Ω			Note 3
R52	4700Ω			Note 5
R53	100K			Note 3
R54	27K	2		
R55	4700Ω			
R56	150Ω			

Note 1. Some versions may use 180K in this application.
Note 2. Some versions may use 2200Ω in this application.
Note 3. Not used in some versions.
Note 4. Some versions may use 220K in this application.
Note 5. Some versions may use 15K in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA Harman-Kardon PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .8A	720VCT @ .100A Tap @ 55V @ .0025A	12V @ 1.8A	FT1021778						

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Harman-Kardon PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	7500Ω CT	16Ω Tap @ 8, 4Ω	FT1021777					22S66 ①		

① Use original shields and mounting brackets.

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA Harman-Kardon PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.0025A	Z1021726	1159	CR-20	10	

FUSES

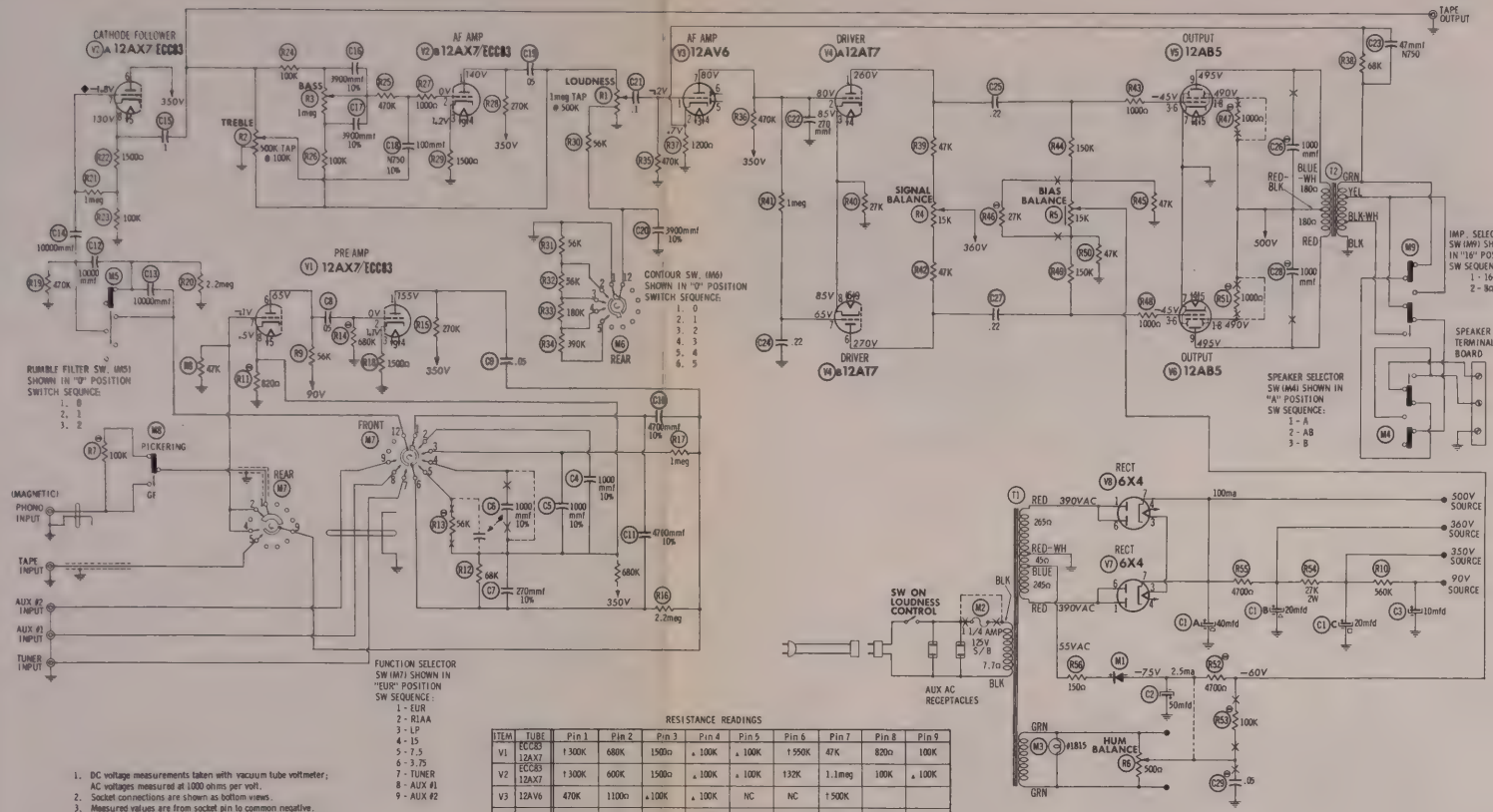
ITEM No.	TYPE	RATING	REPLACEMENT DATA Harman-Kardon PART No. FUSE	Harman-Kardon PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2	MDL	1 1/4A 125V S/B			3131.25 (1 1/4A 125V S/B)	342001	MDL 1 1/4 (1 1/4A 125V S/B)	HKP

MISCELLANEOUS

ITEM No.	PART NAME	Harman-Kardon PART No.	NOTES
M3	Lamp	KB1071741	#1815
M4	Switch		Speaker Selector, 3 Position, Slide Type
M5	Switch		Rumble Filter, 3 Position, Slide Type
M6	Switch	ER1021632	Contour, 6 Position, Single Wafer, Rotary Type
M7	Switch	ER1021633	Function, 9 Position, Dual Wafer, Rotary Type
M8	Switch		G. E. Pickering, 2 Position, Slide Type
M9	Switch		Speaker Impedance, 2 Position, Slide Type

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)


CATHODE FOLLOWER V1 A 12AX7 ECC83
AF AMP V2 B 12AX7/ECC83
AF AMP V3 12AV6
DRIVER V4 A 12AT7
OUTPUT V5 12AB5
DRIVER V4 B 12AT7
OUTPUT V6 12AB5
PRE AMP V1 12AX7/ECC83
TAPE OUTPUT
LOUDNESS
BASS
TREBLE
SIGNAL BALANCE
BIAS BALANCE
CONTOUR SW. (M6) SHOWN IN "O" POSITION SWITCH SEQUENCE: 1. 0 2. 1 3. 2 4. 3 5. 4 6. 5
RUMBLE FILTER SW. (M5) SHOWN IN "O" POSITION SWITCH SEQUENCE: 1. 0 2. 1 3. 2
PICKERING
(MAGNETIC) PHONO INPUT
TAPE INPUT
AUX #2 INPUT
AUX #1 INPUT
TUNER INPUT
FUNCTION SELECTOR SW (M7) SHOWN IN "EUR" POSITION SW SEQUENCE: 1 - EUR 2 - RIAA 3 - LP 4 - 15 5 - 7.5 6 - 3.75 7 - TUNER 8 - AUX #1 9 - AUX #2
IMP. SELECTOR SW (M9) SHOWN IN "16" POSITION SW SEQUENCE: 1 - 16Ω 2 - 8Ω
SPEAKER TERMINAL BOARD
SPEAKER SELECTOR SW (M4) SHOWN IN "A" POSITION SW SEQUENCE: 1 - A 2 - AB 3 - B
RECT V8 6X4
RECT V7 6X4
500V SOURCE
360V SOURCE
350V SOURCE
90V SOURCE
SW ON LOUDNESS CONTROL
AUX AC RECEPTACLES
HUM BALANCE

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83 12AX7	†300K	680K	1500Ω	▲100K	▲100K	†550K	47K	820Ω	100K
V2	ECC83 12AX7	†300K	600K	1500Ω	▲100K	▲100K	†32K	1.1meg	100K	▲100K
V3	12AV6	470K	1100Ω	▲100K	▲100K	NC	NC	†500K		
V4	12AT7	†60K	†500K	27K	▲100K	▲100K	†55K	†1.5meg	27K	▲100K
V5	12AB5	†1000Ω	TP	170K	▲100K	▲100K	170K	0Ω	†1000Ω	†180Ω
V6	12AB5	†1000Ω	TP	170K	▲100K	▲100K	170K	0Ω	†1000Ω	†180Ω
V7	6X4	290Ω	TP	▲100K	▲100K	TP	290Ω	20K(MIN)		
V8	6X4	265Ω	NC	▲100K	▲100K	NC	265Ω	20K(MIN)		

† MEASURED FROM PIN 7 OF V8
• MEASURED FROM PIN 8 OF V2
▲ MEASURED FROM NEGATIVE LUG OF M1
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

MAGNAVOX CHASSIS AMP-169AA, AMP-170AA

MAGNAVOX CHASSIS
AMP-169AA, AMP-170AA

TRADE NAME	Magnavox Chassis AMP-169AA, AMP-170AA; Control Units 700531-6, 700531-7
MANUFACTURER	Magnavox Co., 2131 Bueter Road, Fort Wayne 4, Indiana
TYPE SET	AC Operated Audio Amplifier
TUBES (Four)	Types 6AN8A AF Amp. - Phase Inv., (2) 6V6GT Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .58 Amp. @ 117 Volts AC (58 Watts)

MAGNAVOX CHASSIS
AMP-169AA, AMP-170AA

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H454

PARTS LIST AND DESCRIPTIONS

MAGNAVOX
CHASSIS AMP-169AA

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. - Phase Inv.	6AN8A	
V2	Output	6V6GT	
V3	Output	6V6GT	
V4	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	450	270021-56	AFH4-78	D0640	FP429	TMQ-92	Q-380	TVL-4734
B	■30	450							
C	▲10	450							
D	20	25							
C2	2	350	270027-30	PRS450V2	BR245		TD-2-450	MT-4520	TVA-1701
C3	20	25	270027-28	SRE25V20	BBR20-25	TC45	TD-20-150	MT-0220	TVA-1410

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	220		250218-5	BPD-00022	DD-221	L10T22	UC-5322	5GA-T22	
C5	68		250224-426	1468-000068	D6-680	5W5Q68	UC-5468	5GA-Q68	
C6	3300		250175-41	BPD-0033	DD-332	BYA10D33	UC-5233	5GA-D33	
C7	33		250224-418	1468-000033	D6-330	5W5Q33	UC-5433	5GA-Q33	
C8	10000		250218-19	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C9	.22	200	250202-15	P288N-22		CUB2P22	GEM-2022	2TM-P22	
C10	.047	400	250211-11	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C11	.047	400	250211-11	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C12	.047	400	250211-11	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C13	10000	1000	250219-2	DAC-27	DD16-103			BL-S10	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	3.3meg	½	220131-12				UDT303	Loudness, Tap @ 300K &
R2A	3meg	½	220072-35	B-85	A47-3meg-Z	Q13-140	U57	Bass Note 1. 1.5meg
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1meg	½	220072-34	B-69	A47-1meg-S	Q11-137	U54	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

Note 1. Part #220123-30 (With Switch) used in AMP-170AA.

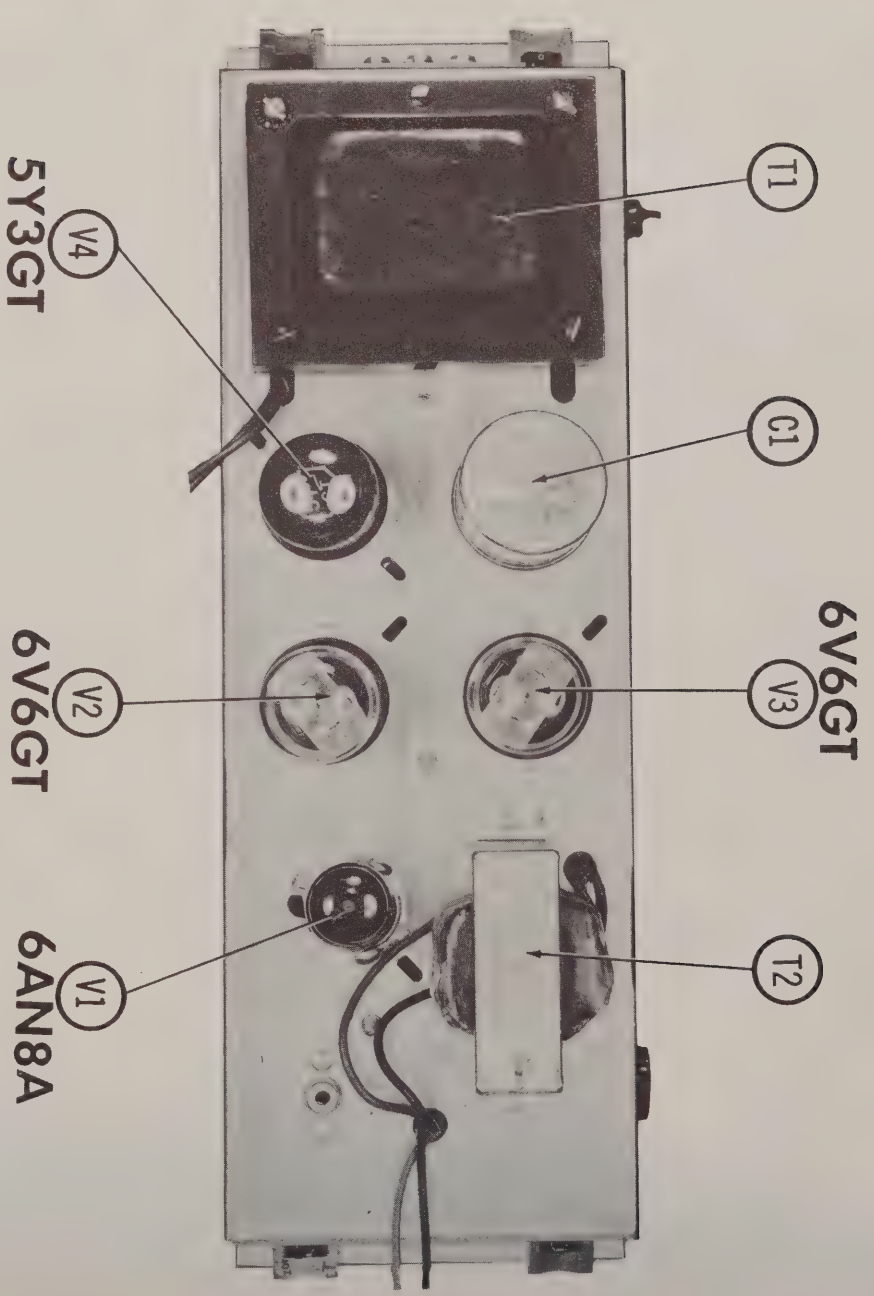
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MAGNAVOX PART No.	NOTES
R4	220K		230104-90	
R5	68K		230104-84	
R6	4.7meg		230104-106	
R7	47K		230104-82	
R8	2.2meg		230104-102	
R9	220Ω		230104-54	
R10	68Ω		230104-48	
R11	1500Ω		230104-64	
R12	470K		230104-94	
R13	470K		230104-94	
R14	2200Ω		230104-66	
R15	470K		230104-94	
R16	39K		230104-81	
R17	470K		230104-94	
R18	100Ω		230104-50	
R19	100Ω		230104-50	
R20	270Ω	2	230106-1055	
R21	4700Ω		230104-70	
R22	100K		230104-86	
R23	470Ω	2	230106-1058	Note 1

Note 1. Replaced with choke (L1) in Chassis AMP-170AA.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .62A	612VCT @ .082A	5V @ 2A	200078-2	P9305 ①	P-3052		PM8408 ①	22R04 ①	R-9B ①
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 1.2A									

① Tape CT on 6.3V Fil. winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6800Ω CT	3-4Ω	330038-1	Z1011	A-2901 ①		A-3870	22S58	S-53X	① Drill new mounting hole.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L1		56Ω	1 Hy.	320041-2 ①	C5040			C-2327	26C44 ②	C-23X ②

① Used in Chassis AMP-170AA only.

② Drill new mounting hole.

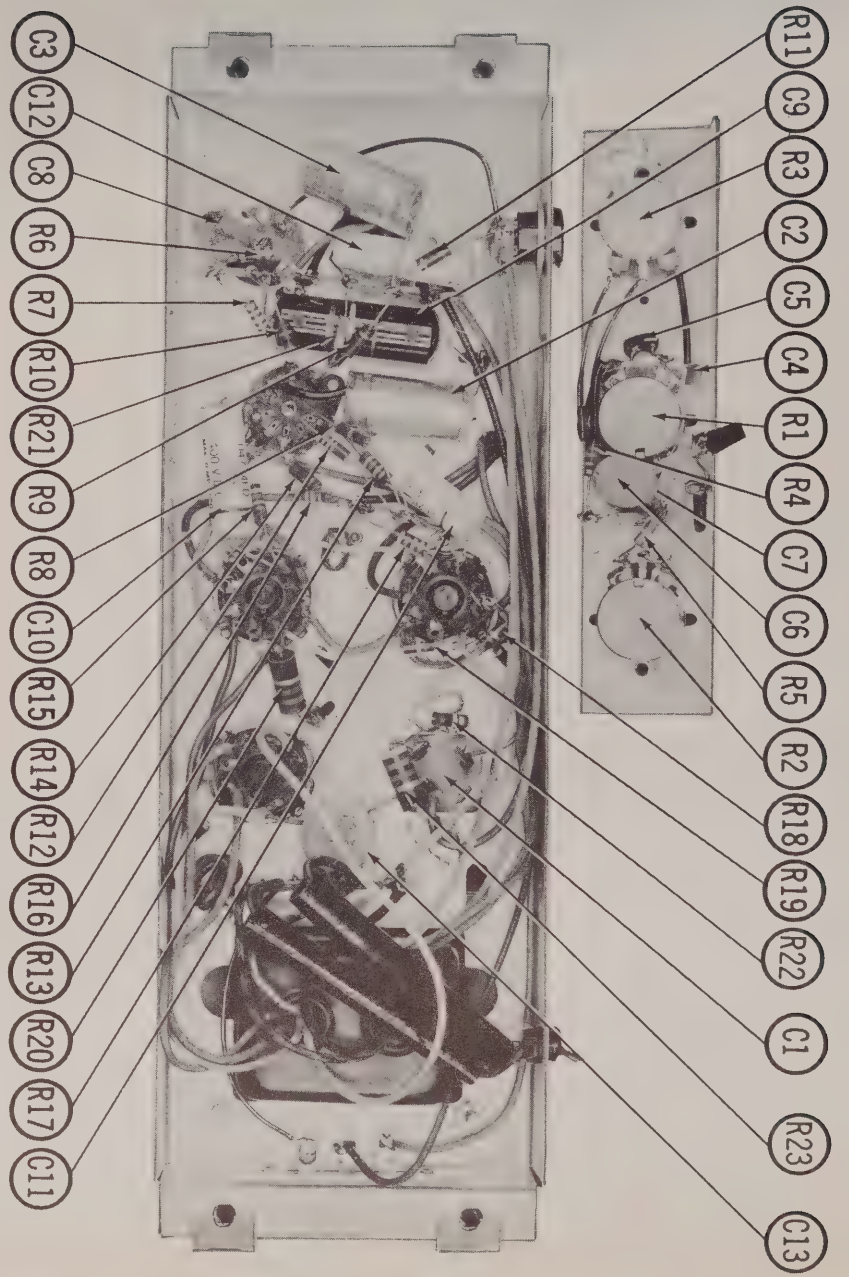
MISCELLANEOUS

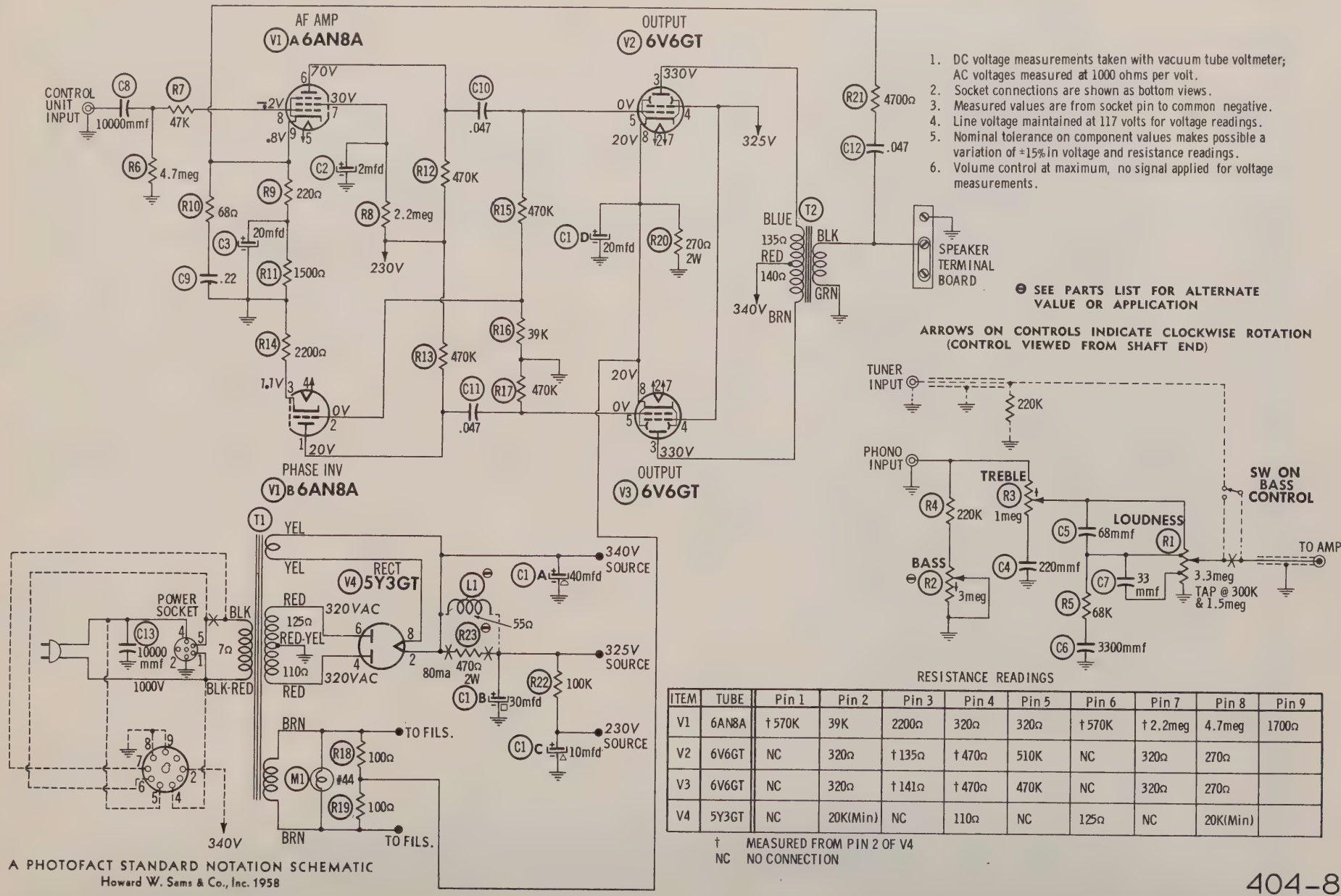
ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
M1	Lamp		#44

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AN8A	†570K	39K	2200Ω	320Ω	320Ω	†570K	†2.2meg	4.7meg	1700Ω
V2	6V6GT	NC	320Ω	†135Ω	†470Ω	510K	NC	320Ω	270Ω	
V3	6V6GT	NC	320Ω	†141Ω	†470Ω	470K	NC	320Ω	270Ω	
V4	5Y3GT	NC	20K(Min)	NC	110Ω	NC	125Ω	NC	20K(Min)	

† MEASURED FROM PIN 2 OF V4
NC NO CONNECTION

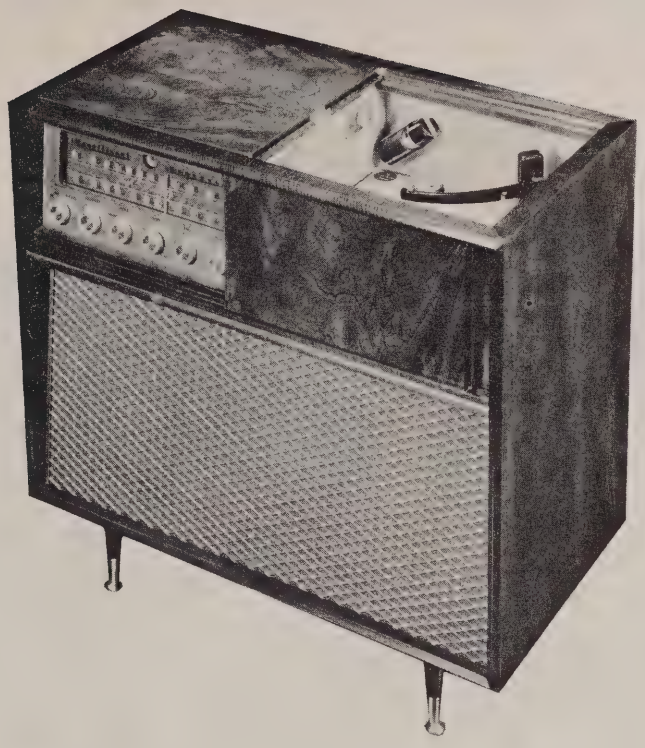
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

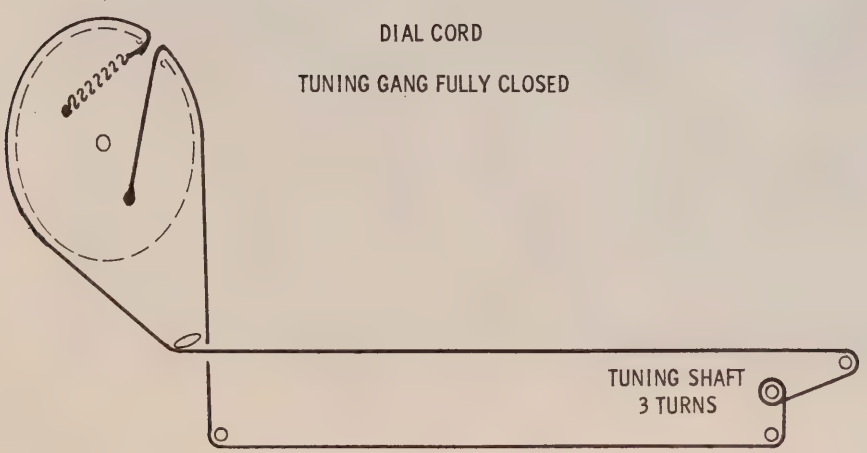
*TRADE MARK

MAGNAVOX CHASSIS CR-745AA, BB, CR-746AA

MAGNAVOX CHASSIS CR-745AA, BB, CR-746AA



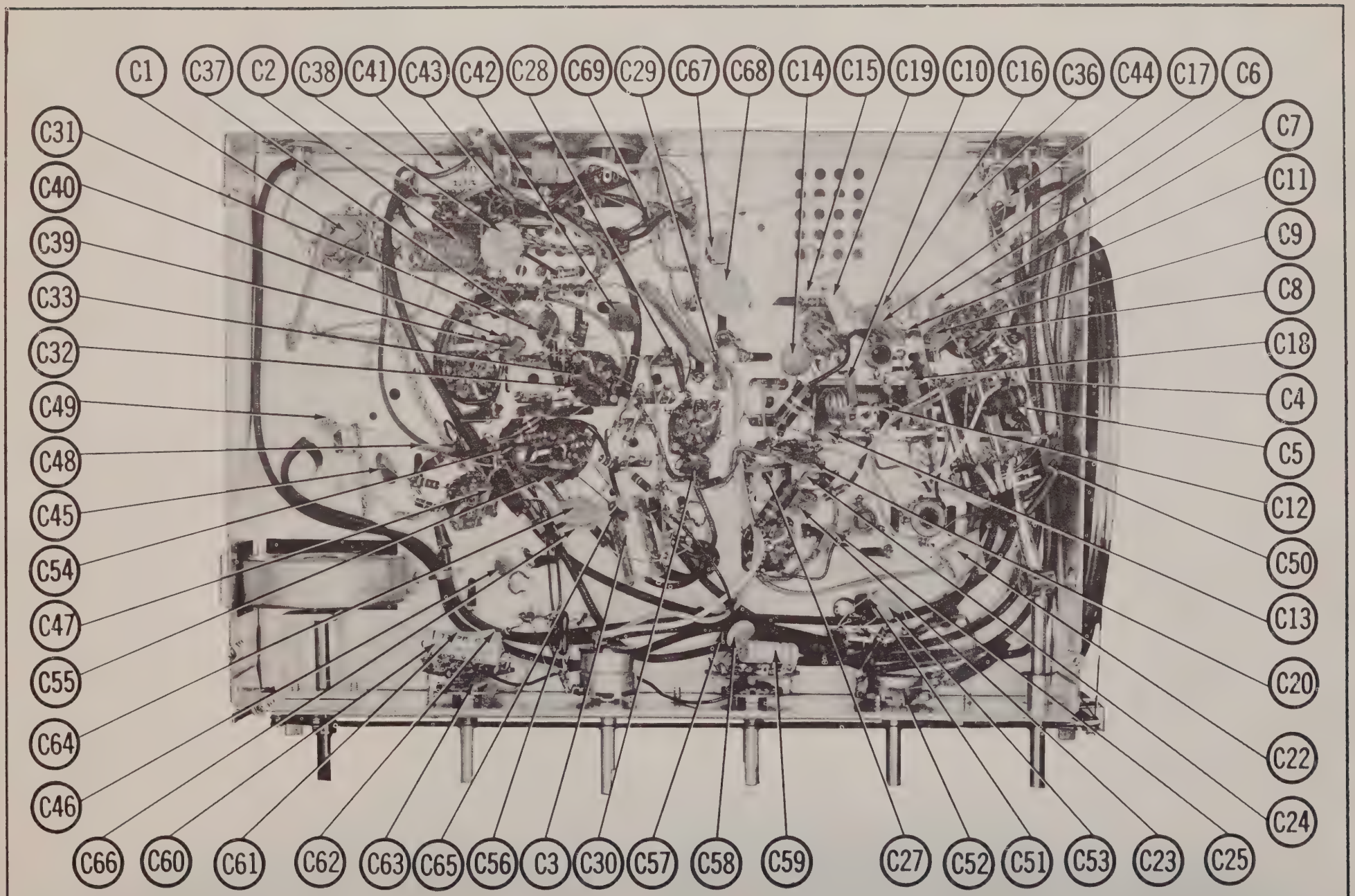
TRADE NAME	Magnavox Chassis CR-745AA, CR-745BB, CR-746AA
MANUFACTURER	Magnavox Co., 2131 Bueter Road, Fort Wayne 4, Indiana
TYPE SET	AC Operated FM-AM Tuner
TUBES (Nine)	Types 6BZ6 FM-AM RF Amplifier, 6U8 FM Mixer-FM OSC., 6BE6 AM Converter, 6BA6 FM-AM IF Amplifier, 6BA6 FM Limiter, 6AL5 Ratio Detector, 6E5 Tuning Indicator, 6AV6 Phono Preamplifier, 12AT7 AF Amp.-Cath. Follower
POWER SUPPLY	Externally Powered
TUNING RANGE—BROADCAST 540-1620KC	FREQ. MOD. 88-108MC



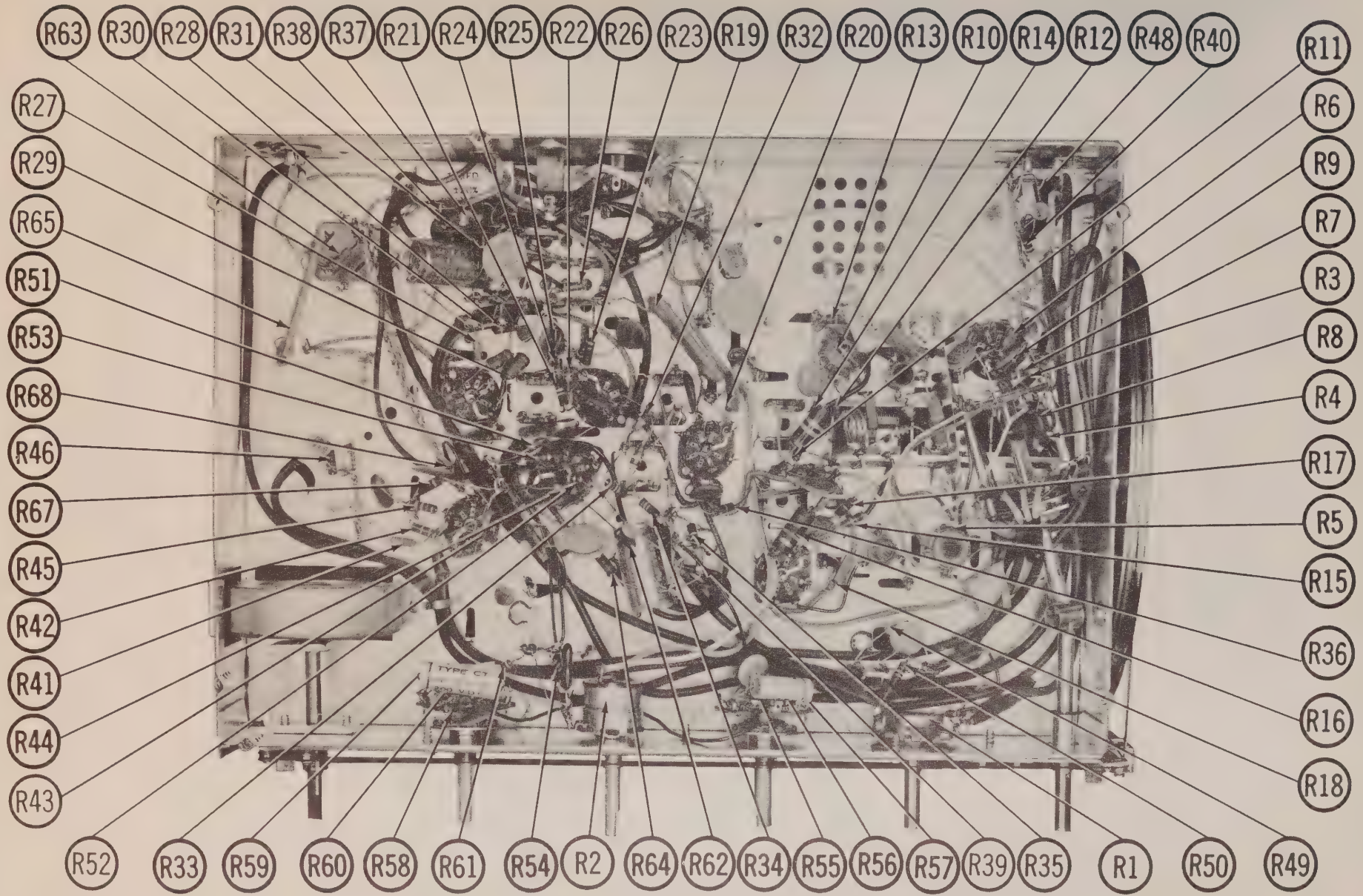
MAGNAVOX CHASSIS CR-745AA, BB, CR-746AA

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

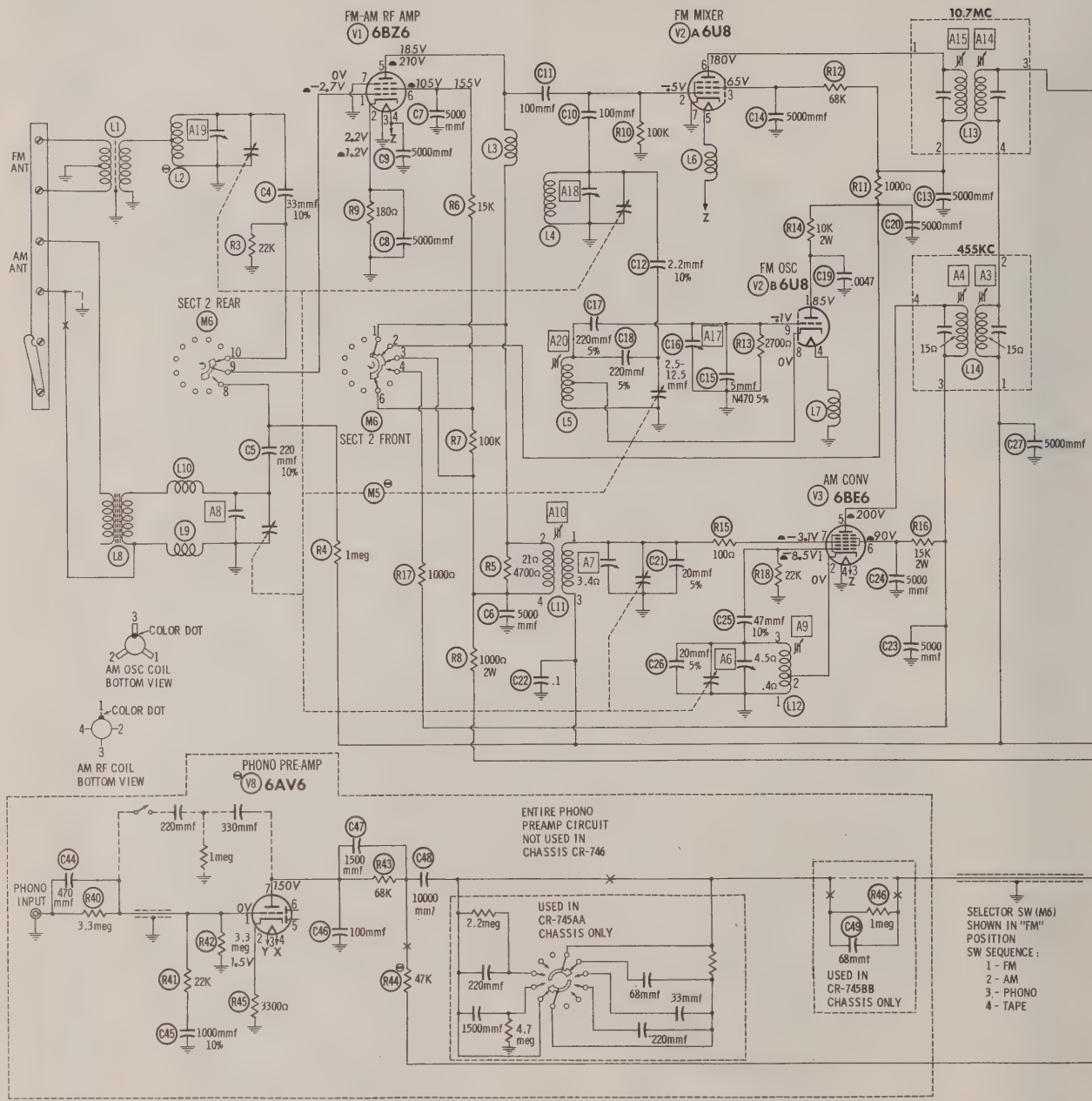


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

MAGNAVOX
CHASSIS CR-745AA

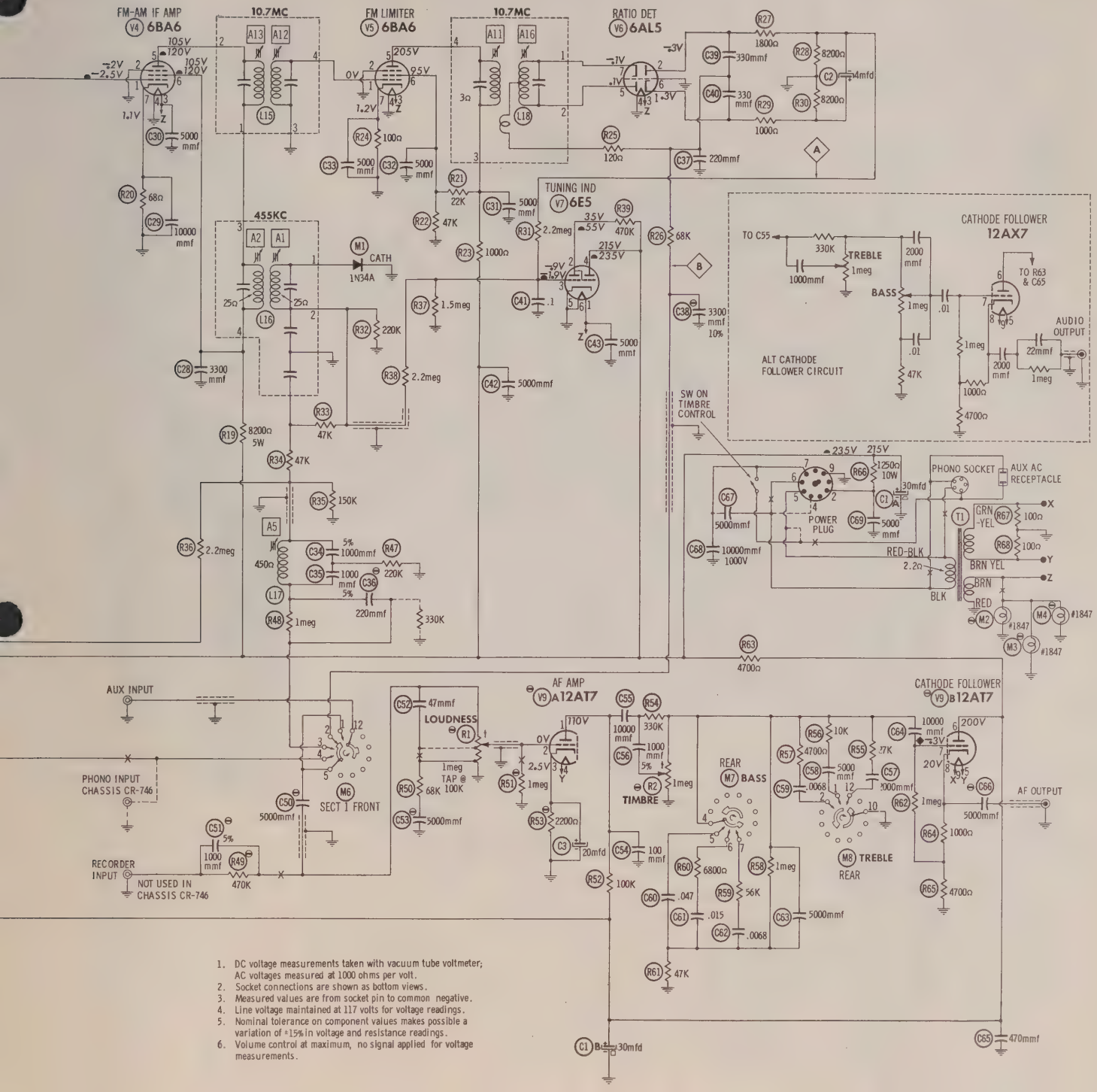


RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	22K ▪3.3meg	180Ω	0Ω	.1Ω	†6900Ω	†115K	0Ω		
V2	6U8	†12K	100K	†70K	.1Ω	.2Ω	†3200Ω	0Ω	0Ω	2700Ω
V3	6BE6	▪22K	▪.4Ω	.1Ω	0Ω	†▪3200Ω	†▪18K	▪2.3meg		
V4	6BA6	2.3meg	0Ω	.1Ω	0Ω	†9400Ω	†9400Ω	68Ω		
V5	6BA6	.7Ω	0Ω	.1Ω	0Ω	†2200Ω	†20K	100Ω		
V6	6AL5	9200Ω	10K	.1Ω	0Ω	INF	0Ω	INF		
V7	6E5	.1Ω	†470K	570K	†1250Ω	0Ω	0Ω			
V8	6AV6	3.3meg	3300Ω	45Ω	45Ω	NC	NC	†120K		
V9	12AT7	†100K	0Ω	2200Ω	45Ω	45Ω	†6000Ω	1meg	5700Ω	45Ω

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
† MEASURED FROM PIN 2 OF POWER PLUG
▪ MEASURED IN "AM" POSITION
• MEASURED FROM PIN 8 OF V9
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958



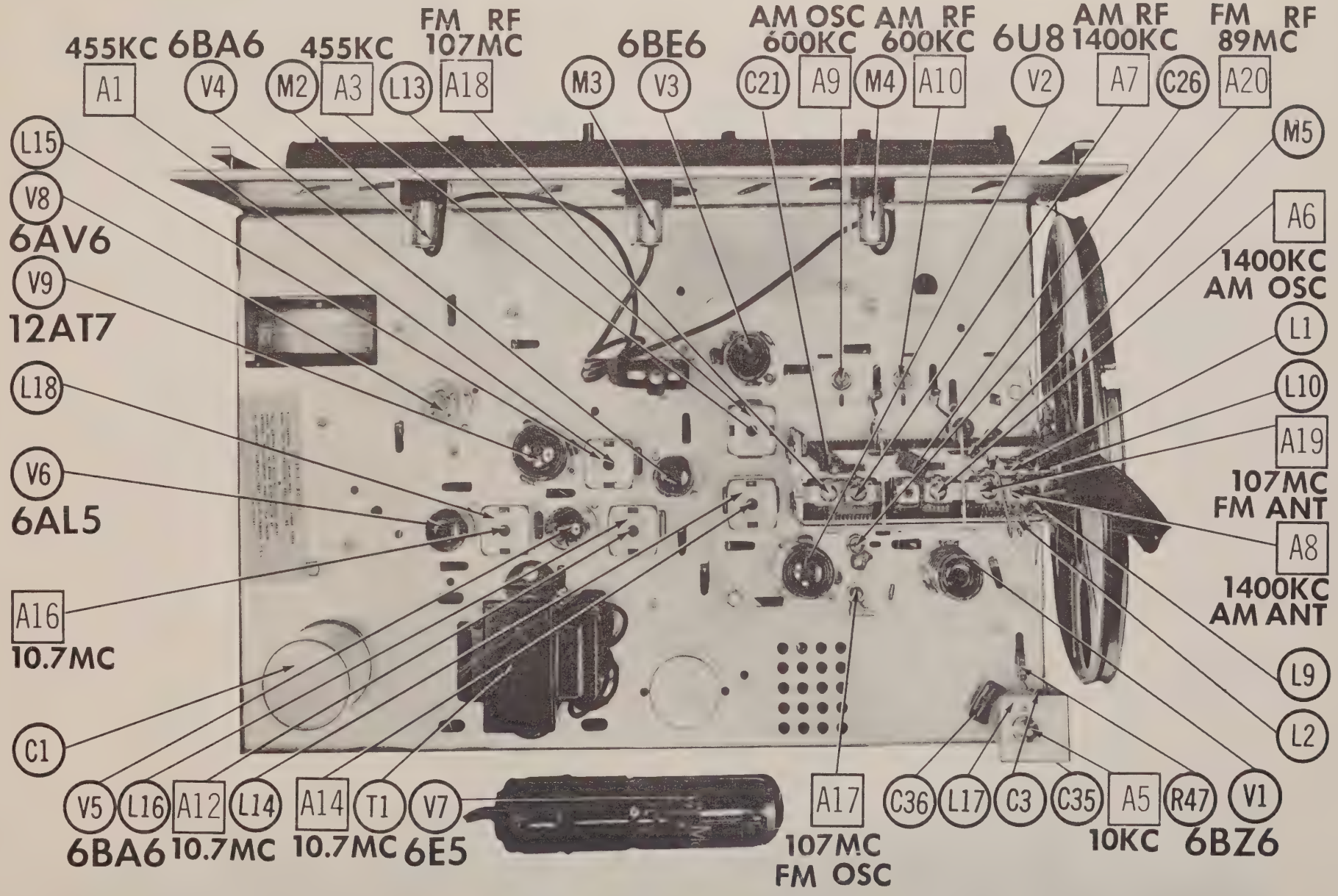
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

404-9



CHASSIS-TOP VIEW

ALIGNMENT INSTRUCTIONS

PREALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd	High side to pin 7 (grid) of 6BE6 (V3). Low side to chassis.	455KC (400∿ Mod)	AM	Tuning gang fully open	Across Voice Coil	A1, A2 A3, A4	Adjust for maximum deflection.
2.	"	"	455KC (10KC Mod)	"	"	"	A5	Adjust for MINIMUM deflection.
3.	10mmf	High side to AM Ant. terminal. Low side to chassis.	1400KC (400∿ Mod)	"	1400KC	"	A6, A7, A8	Adjust for maximum deflection.
4.	"	"	600KC	"	600KC	"	A9, A10	Adjust for maximum deflection. Repeat steps 3 & 4.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.01mfd	High side to pin 2 (grid) of 6U8 (V2). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe thru 1meg to point (A) Common to chassis.	A11, A12 A13, A14 A15	Adjust for maximum deflection.
6.	"	"	"	"	"	DC probe thru 1meg to point (B) Common to chassis.	A16	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 5 & 6.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizonial deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.01mfd & 1000Ω Carbon Resistor in series	High side thru dummy to pin 2 (grid) of 6U8 (V2B) Low side to chassis.	10.7MC (450KC Sweep)	FM	Point of non-interference	Vert. Amp. thru 1meg to point (A) Low side to chassis.	A11, A12 A13, A14 A15	Disconnect stabilizing capacitor C 2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1
6.	"	"	"	"	"	Vert Amp. thru 1meg to point (B) Low side to chassis.	A16	Reconnect stabilizing capacitor C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A11 for maximum amplitude and straightness of crossover lines. Repeat steps 5 & 6.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	120Ω & 150Ω Carbon Resistor	To FM Ant. terminals with 120Ω in high side & 150Ω in low side.	107MC (Unmod)	FM	107MC	DC probe thru 1meg to point (A) Common to chassis.	A17, A18 A19	Adjust for maximum deflection.
8.	"	"	89MC	"	89MC	"	A20	Adjust for maximum deflection. Repeat steps 7 & 8.

FIG. 1

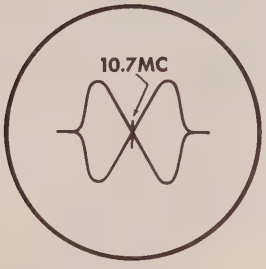


FIG. 2

PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM-AM RF Amplifier	6BZ6	
V2	FM Mixer-FM Osc.	6U8	
V3	AM Converter	6BE6	
V4	1st FM-AM IF Amplifier	6BA6	

Note 1. Not used in Chassis CR-746AA

ITEM No.	USE	TYPE	NOTES
V5	FM Limiter	6BA6	
V6	Ratio Detector	6AL5	
V7	Tuning Indicator	6E5	
V8	Phono Preamplifier	6AV6	Note 1.
V9	AF Amp. -Cath. Follower	12AT7	Note 2.

Note 2. Type 12AX7 used in Chassis CR-746AA

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Magnavox PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲30	450	270021-58	AFH2-54	B0430	FP237	TMD-52	D225	TVL-2759
B	■30	450							
C2	4	50	270027-27	PRS150V4	BBR4-50	TC30	TD-4-50	MT-0504	TVA-1402
C3	20	25	270027-28	PRS50V20	BBR-20-25	TC26	TD-25-25	MT-0220	TVA-1205

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Magnavox PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	33		250187-47	1469-000033	DD-330	22R5Q33		MS-433	10%
C5	220		250187-57	1469-00022	DD-221	22R5T22		MS-322	10%
C6	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C7	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C8	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C9	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C10	100		250187-53	1468-0001	DD-101	5W5T1	MC235	1FM31	
C11	100		250187-53	1468-0001	DD-101	5W5T1	MC235	1FM31	
C12	2.2		250221-118	NP0-S12.2	TCZ-2R2	C10V22C		5TCCB-V22	10%
C13	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C14	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C15	5		250088-138						N470 5%
C16	2.5-2.5		250188-9						
C17	220		250159-55	1469-00022	DTZ-220	22R5T22		MS-322	5%
C18	220		250159-55	1469-00022	DTZ-220	22R5T22		MS-322	5%
C19	.0047	400	250211-5	P488N-0047	D6-472	CUB6D47	GEM-6247	6TM-D47	
C20	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C21	20		250187-5	1469-00002	DTZ-20	22R5Q2		MS-42	5%
C22	.1	200	250202-13	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C23	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C24	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	

PARTS LIST AND DESCRIPTIONS (Continued)
CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Magnavox PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C25	47		250187-49	1469-000047	DD-470	22R5Q47		MS-447	10%
C26	20		250187-5	1469-00002	DTZ-20	22R5Q2		MS-42	5%
C27	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C28	3300		250175-28	BPD-0033	DD-332	BYA10D33	UC-5233	5HK-D33	
C29	10000		250218-19	BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C30	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C31	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C32	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C33	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C34	1000		250228-354	1464-001		1R5D1	MCE251	MS-21	5%
C35	1000		250228-354	1464-001		1R5D1	MCE251	MS-21	5%
C36	220		250218-5	BPD-00022	DD-221	L10T22	UC-5322	5GA-T22	①
C37	220		250218-5	BPD-00022	DD-221	L10T22	UC-5322	5GA-T22	
C38	3300		250175-28						10%②
C39	330		250207-49	SI330	D6-331	LT6T33	UC-5333	5GA-T33	
C40	330		250207-49	SI330	D6-331	LT6T33	UC-5333	5GA-T33	
C41	.1	200	250202-13	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C42	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C43	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C44	470		250218-6	BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C45	1000		250228-354						10%
C46	100		250218-22	BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
C47	1500		250218-18	BPD-0015	DD-152	BYA10D15	DC5215	5HK-D15	
C48	10000		250218-19	BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C49	68		250218-7	BPD-000068	DD-680	L10Q68	UC-5468	5GA-Q68	
C50	5000		250175-30	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	③
C51	1000		250228-354	1464-001		1R5D1	MCE251	MS-21	④ 5 %
C52	47		250218-17	BPD-000047	DD-470	L10Q47	UC-5447	5GA-Q47	
C53	5000		250175-30	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	⑤
C54	100		250218-22	BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
C55	10000		250218-19	BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C56	1000		250218-8	1464-001		1R5D1	MCE251	MS-21	5%
C57	2000		250218-20	BPD-002	DD-202	BYA10D2	UC-522	5HK-D2	
C58	5000		250175-30	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C59	.0068	400	250211-6	P488N-0068	D6-682	CUB6D68	GEM-6268	6TM-D68	
C60	.047	200	250202-11	P288N-047		CUB2S47	GEM-4147	2TM-S47	
C61	.015	200	250202-8	P288N-015		CUB6S15	GEM-4115	4TM-S15	
C62	.0068	400	250211-6	P488N-0068	D6-682	CUB6D68	GEM-6268	6TM-D68	
C63	5000		250175-30	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C64	10000		250218-19	BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C65	470		250175-8	BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C66	5000		250175-30	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	⑥
C67	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C68	10000	1000	250219-2	DAC-27	DD-103	BYA10S1	DC511	10HKB-S1	
C69	5000		250175-1	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	

①Chassis CR-746 uses 470mmf (Part#250218-6)
②Chassis CR-746 uses 1500mmf (Part # 250218-18)
③Chassis CR-746 uses 2000mmf (Part #250218-20)
④Not used in CR-746AA
⑤Chassis CR-746 uses 3300mmf (Part #250175-28)
⑥Chassis CR-746 uses 10000mmf (Part # 250218-19)

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Magnavox PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	220074-12	B7-7417	A47F3-1meg	Q18-137X		Loudness, Tap @ 100K Note 1.
B	Shaft			Not Req.	FS-3	Not Req.		
R2A	1meg	½	220135-3				PP16A	Timbre, Note 2.
B	Switch							

Note 1. Part # 220131-3 (3.3meg) used in Chassis CR-746AA
Note 2. Timbre control used only in Chassis CR-745BB. Chassis CR-745AA use treble control (1meg) Part #220135-3 and bass control with switch (1meg) Part #220073-20. Chassis CR-746AA use treble control (1meg) Part#220072-26 and bass control (1meg) Part #220073-23

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Magnavox PART No.	NOTES
	OHMS	WATT		
R3	22K		230104-78	
R4	1meg		230104-98	
R5	4700Ω		230104-70	
R6	15K		230104-76	
R7	100K		230104-86	
R8	1000Ω	2	230106-1062	
R9	180Ω		230104-53	
R10	100K		230104-86	
R11	1000Ω		230104-62	
R12	68K		230104-84	
R13	2700Ω		230104-67	
R14	10K	2	230106-1074	
R15	100Ω		230104-50	
R16	15K	2	230106-1076	
R17	1000Ω		230104-62	
R18	22K		230104-78	
R19	8200Ω	5	240071-13	
R20	68Ω		230104-48	
R21	22K		230104-78	
R22	47K		230104-82	
R23	1000Ω		230104-62	
R24	100Ω		230104-50	
R25	120Ω		230104-51	
R26	68K		230104-84	
R27	1800Ω		230104-65	
R28	8200Ω		230104-73	
R29	1000Ω		230104-62	
R30	8200Ω		230104-73	
R31	2.2meg		230104-102	
R32	220K		230104-90	
R33	47K		230104-82	
R34	47K		230104-82	
R35	150K		230104-88	
R36	2.2meg		230104-102	
R37	1.5meg		230104-100	
R38	2.2meg		230104-102	
R39	470K		230104-94	
R40	3.3meg		230104-104	
R41	22K		230104-78	
R42	3.3meg		230104-104	
R43	68K		230104-84	
R44	47K		230104-82	Note 1
R45	3300Ω		230104-68	
R46	1meg		230104-98	
R47	220K		230104-90	
R48	1meg		230104-98	
R49	470K		230104-94	Note 2
R50	68K		230104-84	
R51	1meg		230104-98	Note 2
R52	100K		230104-86	
R53	2200Ω		230104-66	Note 3
R54	330K		230104-92	
R55	27K		230104-79	
R56	10K		230104-74	
R57	4700Ω		230104-70	
R58	1meg		230104-98	
R59	56K		230104-83	
R60	6800Ω		230104-72	
R61	47K		230104-82	
R62	1meg		230104-98	
R63	4700Ω		230104-70	
R64	1000Ω		230104-62	
R65	4700Ω		230104-70	
R66	1250Ω	10	240071-21	
R67	100Ω		230104-50	
R68	100Ω		230104-50	

Note 1. Not used in some versions.
Note 2. Not used in Chassis CR-746AA.
Note 3. Chassis CR-746 uses 3300Ω (Part #230104-68)

TRANSFORMER (FILAMENT)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	Magnavox PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V	6.3V	6.3V	320277-1						
	@ .23A	@ .57A	@ 2.6A							

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Magnavox PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Trans.	360491-3					
L2	FM Ant. Coil	360656-1					Note 1.
L3	RF Choke	360522-9	19-1002	BC-563	4606		2 Microhenries
L4	FM RF Coil	360629-1					
L5	FM Osc. Coil	360628-1					
L6	Fil. Choke	360522-9	19-1002	BC-563	4606		2 Microhenries
L7	Fil. Choke	360522-9	19-1002	BC-563	4606		2 Microhenries
L8	Loop Stick	360707-2					
L9	AM Ant. Coil	360522-9	19-1002	BC-563	4606		2 Microhenries
L10	AM Ant. Coil	360522-9	19-1002	BC-563	4606		2 Microhenries
L11	AM RF Trans.	360348-2					
L12	AM Osc. Coil	360407-2		BC-393 *			* Disregard capacity winding
L13	1st FM IF	360626-1	16-3487	FM-254	1463		
L14	1st AM IF	360611-1	16-6758	BC-352	12-C1	RF-1	
L15	2nd FM IF	360626-1	16-3487	FM-254	1463		
L16	2nd AM IF	360625-1	16-6770	BC-355	12-C6		
L17	10KC Filter	360621-1					
L18	Ratio Det.	360627-1	17-3498	FM-255	1465		

Note 1. Part # 360629-1 used in Chassis CR-746AA

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		Magnavox PART No.	CBS PART No.	SYLVANIA PART No.	
M1	IN34A	530030-2	IN34A	IN38A	AM Det. (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	Magnavox PART No.	NOTES
M2	Lamp		#1847 (Not used in Chassis CR-746AA)
M3	Lamp		#1847 (Not used in Chassis CR-746AA)
M4	Lamp		#1847 (Not used in Chassis CR-746AA)
M5	Tuning Cap.	260137-1	6 Gang (AM Sections: Ant. 30-550mmf, RF 24-525mmf, Osc. 16-190mmf) Chassis CR-745
	Tuning Cap.	260136-1	6 Gang, Chassis CR-746
M6	Switch	160264-1	Band, 4 position, Rotary Wafer Type
M7	Switch	160278-1	Bass, 4 position, Rotary Wafer Type, Chassis CR-745BB
M8	Switch	160278-1	Treble, 4 position, Rotary Wafer Type, Chassis CR-745BB

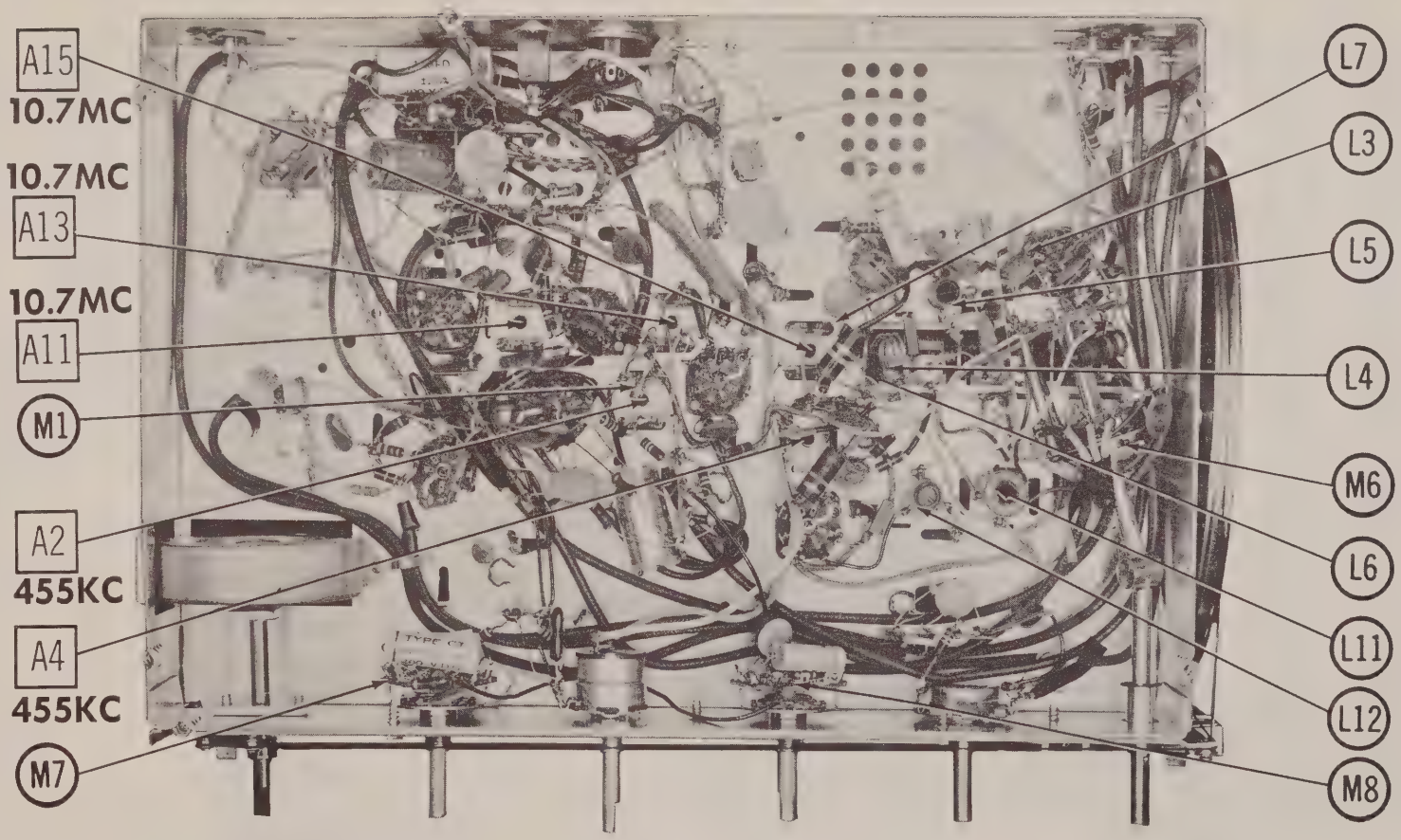
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	150426-1	Chassis CR-745
Dial Pointer	635321-1	Chassis CR-745
Dial Pointer	102448-2	Chassis CR-746

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)



CHASSIS BOTTOM VIEW—ALIGN, INDUCTOR, MISC INDENT.

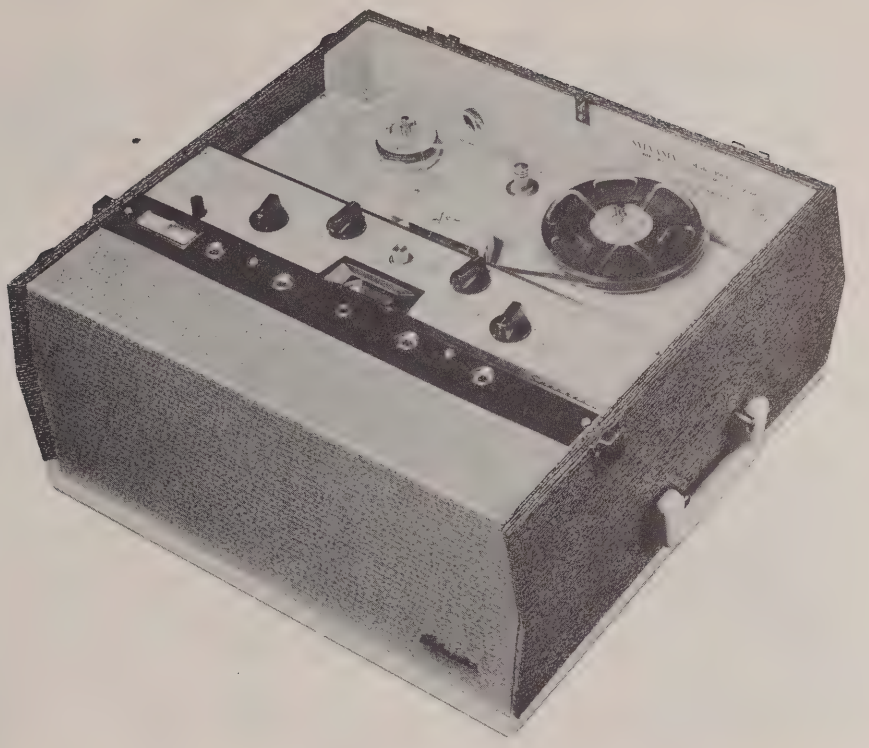
PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

**SYLVANIA MODEL 4901
(Ch. 1-400-1, -2, 1-628-1)**

SYLVANIA MODEL 4901
(Ch. 1-400-1, -2, 1-628-1)



SYLVANIA MODEL 4901
(Ch. 1-400-1, -2, 1-628-1)

GENERAL INFORMATION

Sylvania Model 4901 Tape Recorder records and plays back two tracks of material on standard width recording tape, doubling recording and playing time with no loss of frequency response or quality. Recordings can be made from a radio, television receiver, or phonograph, as well as by speaking into the microphone.

It has simplified controls and an illuminated meter-type volume level indicator. Markings on meter show proper volume level for recording. Meter light indicates when unit is on.

Tape speeds are 3 3/4" and 7 1/2" per second. Using both tape tracks, recording time is as follows:

Reel Size	3 3/4" Speed	7 1/2" Speed
5" (600 ft.)	1 hour	1/2 hour
7" (1200 ft.)	2 hours	1 hour

Connect this recorder to an outlet supplying 110-120 volts, 60 cycles AC only. Before connecting to your line supply, be absolutely certain it agrees with above specifications.

Supplied by:

Sylvania Home Electronics
Div. of Sylvania Electric Products Inc.
700 Ellicott St.
Batavia, New York

This material compiled and published by

HOWARD W. SAMS & CO., INC., INDIANAPOLIS, INDIANA

Copyright 1958 • All Rights Reserved

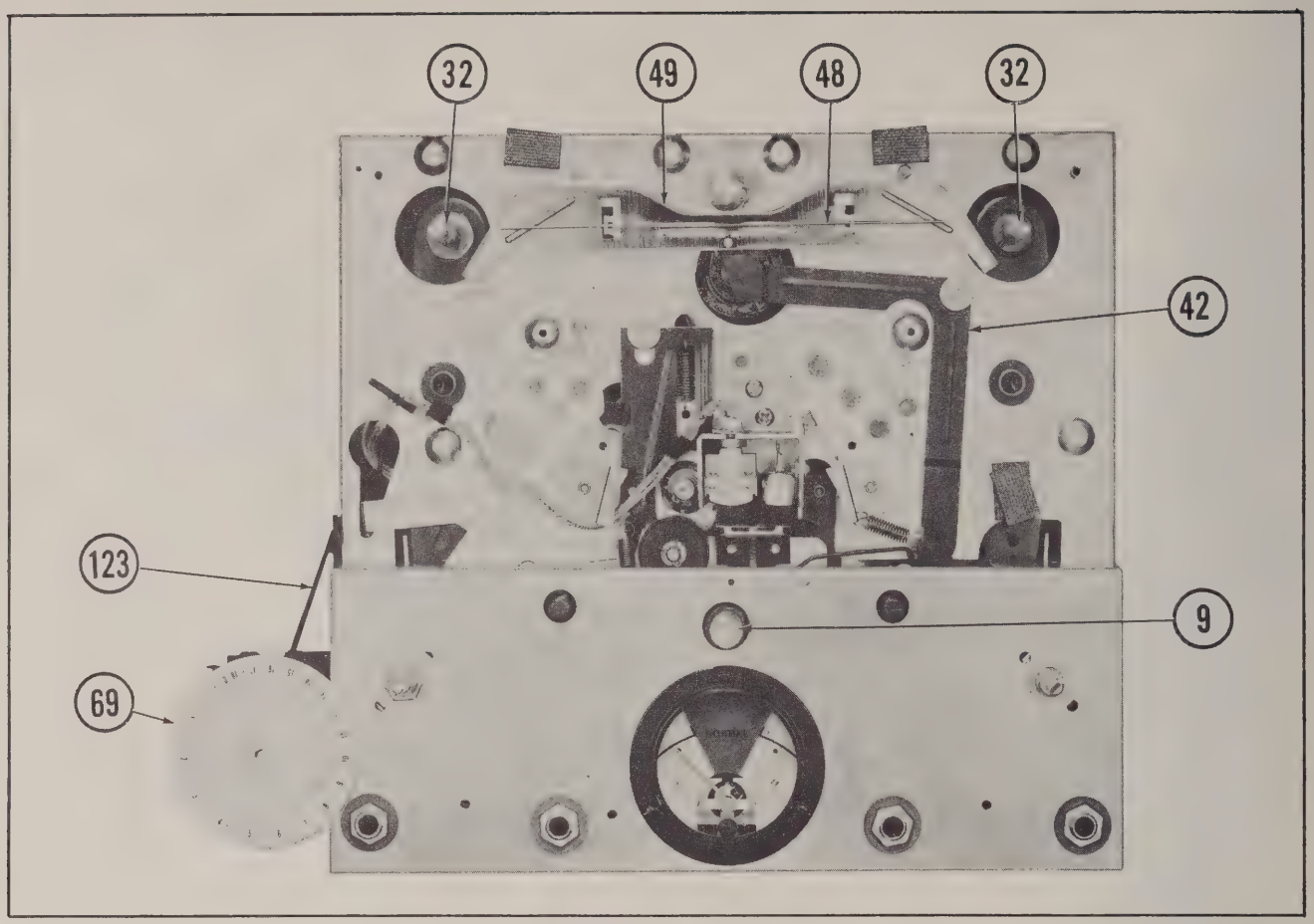


FIG. 1 MECHANISM WITH TOP PLATE REMOVED

RECORDER PREPARATION

Preparation for Operation

1. Open recorder cover and remove power cord, microphone, empty reel and reel of tape from storage space at rear of set.

2. Plug power cord into any AC outlet having proper frequency and power. This unit operates on a 105-125-volt, 60-cycle AC power supply.

3. Remove cover by unlocking hinge. Place recorder so controls are accessible.

4. Recorder is now ready to use. Before operating, familiarize yourself with the operating controls.

FUNCTION OF CONTROLS

On-Off Volume Control

Left-hand knob on recorder control panel operates the amplifier, as well as controlling volume on playback and record. Rotating this knob clockwise from extreme left position turns on amplifier. Turning knob farther to right increases volume; turning to left decreases volume.

Tape Drive Control

Tape Drive Control operates tape drive mechanism for playback and record.

This control has two positions, idle and playback. At left (counterclockwise) position, control is in idle and recorder will not playback or record. At right (clockwise) position, controls switch tape drive into position, either for playback or record.

Record Edit Control

Metal knob directly behind recording level meter controls amplifier circuits for playback or record. This knob is used with the Tape Drive control. With Record-Edit knob in up (normal) position, amplifier circuit is set for playback. When Tape Drive control is turned to right, tape begins moving through tape slot and any previously recorded sound will be reproduced.

By pushing "Record-Edit" control down, amplifier is switched to record. When control is held down and "Tape Drive" knob turned to right, control locks in down position. Tape will now move through tape slot and recorder will record.

Fast Forward-Rewind Control

This knob controls high-speed forward and rewind mechanism. With "Tape Drive" knob in "Idle" position, moving "Forward-Rewind" knob to right (clockwise) rapidly winds tape on "Take-up" reel. Moving knob to left (counterclockwise) rapidly rewinds tape on "Feed" reel.

Tone-Monitor Control and Motor Switch

The motor is operated by this control when amplifier switch is on and acts as a monitor control in addition to regulating tone during playback of recordings.

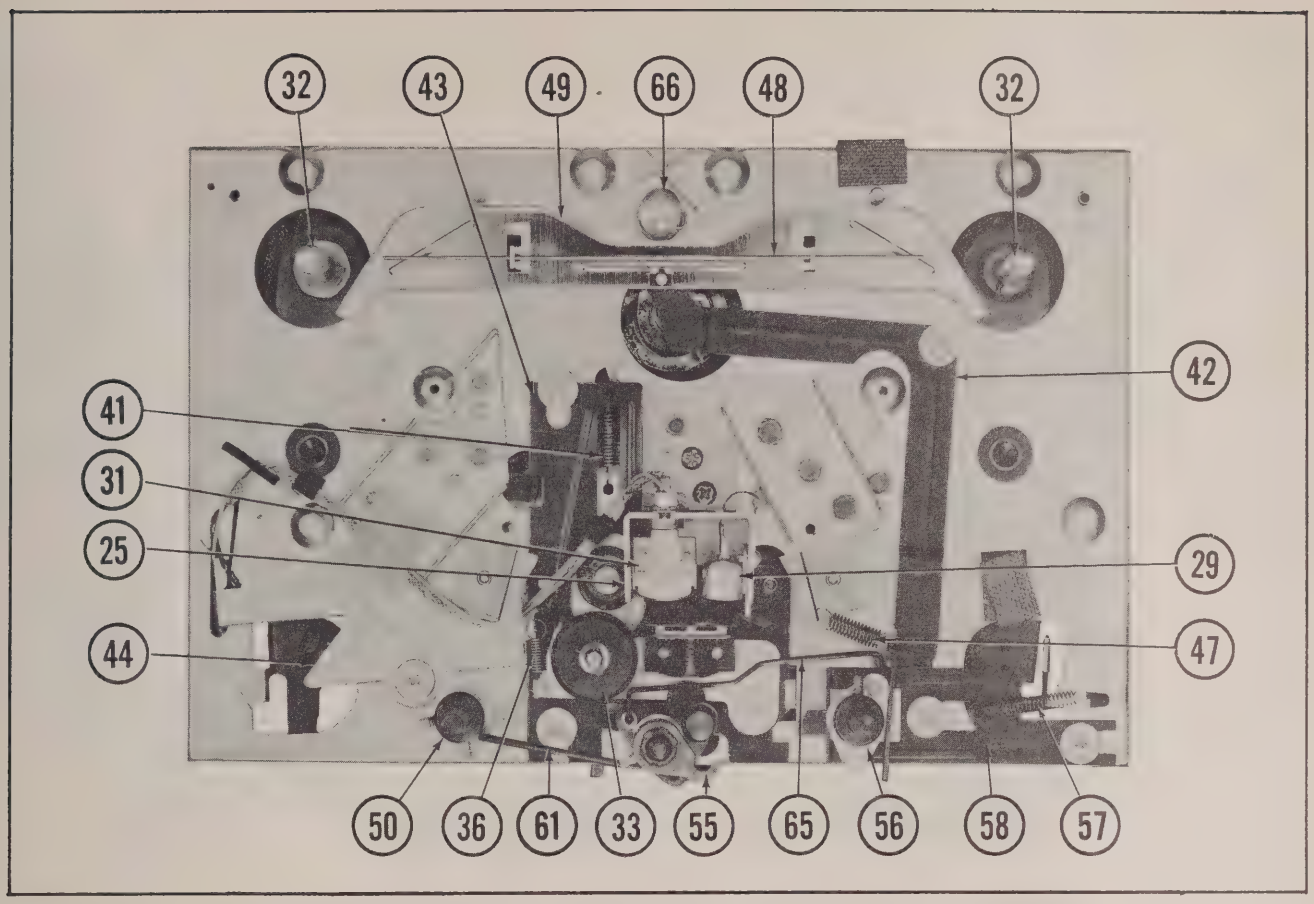


FIG. 2 MECHANISM TOP VIEW WITH PLATE AND AMPLIFIER REMOVED

Motor is turned on by rotating this control to the right (clockwise) from extreme left.

During playback, it regulates tone. With motor on, further rotation varies tone from bass (left) to treble (right).

When control is at extreme left, motor is off even with amplifier on. This gives you proper volume level during recording without running tape through recorder. Tape mechanism may be engaged and volume control set while tape is not moving.

With set in record position, tone knob controls monitor circuit. Tone control should be set as far counterclockwise (left) as possible without turning off motor. Then rotate slowly clockwise (right) until a suitable volume level for proper monitor volume level is obtained.

Speed Control

Change speed by placing speed button at "Up" for 3 3/4" per second and "Down" for 7 1/2" per second.

Caution: Do not operate speed control unless motor is running.

OPERATING INSTRUCTIONS

Threading Tape

1. Place a reel of tape on right reel plate and an empty reel on left reel plate. Make sure reel slots engage pins on reel plates.

2. Unwind about 10" of tape. Pull a section of tape taut with both hands and insert tape in tape slot. Make sure dull-coated side faces rear of recorder.

3. Insert free end of tape into one of three radial slots in hub of empty reel. Turn reel several turns clockwise until tape is secured to reel and all slack is taken up between reels.

To Record from Microphone

1. Turn "On-Off-Volume" control clockwise until a click is heard. Allow thirty seconds for tubes to warm up.

2. Insert microphone plug into "Mike" jack.

3. Make sure "Tone" control and "Motor" switch are off. Push down on "Record-Edit" knob, hold down and turn "Tape Drive" knob to right until both knobs lock in place.

4. Speak into microphone in a normal voice, and turn "Volume" control to right until pointer on Recording Level Meter fluctuates only with "Normal" range. If possible, make a preliminary experimental recording to determine correct setting of "Volume" control for type of material being recorded. For voice recording, hold microphone about 6" to 12" from your mouth.

5. Turn on "Tone" control and "Motor" switch and adjust "Tone-Monitor" control to proper level. Adjust "Speed" control knob for desired speed, 3 3/4" or 7 1/2" per second.

Note: Correct recording volume is important. Too weak a signal, which does not cause record level to fluctuate, will result in weak playback and high background noise. Too strong a signal, causing level in-

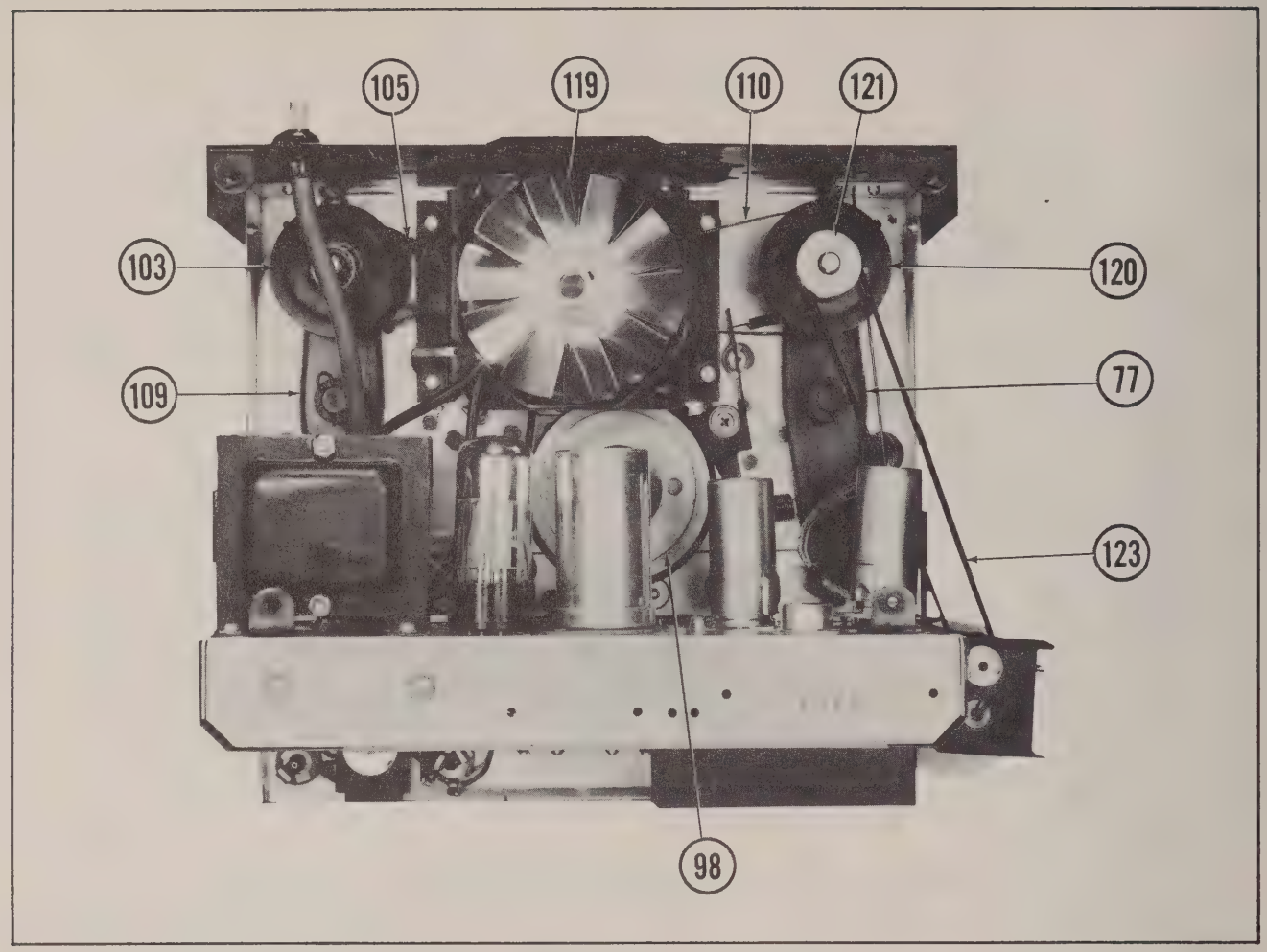


FIG. 3 MECHANISM BOTTOM VIEW

dicator to go above "Normal" (green) range, will result in distortion.

To Record from Radio

Recordings from a radio may be made by one of three methods:

1. Place microphone about 6" to 12" in front of radio speaker. Turn radio volume control to a normal level. Setting it too high causes distortion. Turn radio tone control to maximum treble. Set recording level and proceed with recording as described under "To Record From Microphone". This type of recording may not be satisfactory, as other sounds may be picked up by microphone and recorded.

2. Use speaker cable made up with a two-conductor phone plug on one end and two alligator clips on other end. Connect alligator clips across voice coil terminals on radio speaker and insert cord plug into "Radio" jack. Set radio volume and tone controls as described above. Set recording level and proceed as described under "To Record From Microphone".

3. Have a shielded cable with two-conductor phone plug on one end with other end connected across radio volume control. Insert phone plug into "Radio" jack. Set recording level and proceed with recording as described under "To Record from Microphone". Since positions of radio volume and tone controls have no effect on this setup, they may be set anywhere.

To Record from Phonograph

1. If phonograph has a phone-type plug on pick-up leads, insert it into "Radio" jack. Set recording level and proceed with recording as described under "To Record from Microphone".

2. If phonograph has the more common standard pin-type plug, an adaptor is needed. Insert pin plug into adaptor and plug adaptor into "Radio" jack.

To Record from Television Receiver

Use one of three methods described under "To Record from Radio" and proceed with recording as described under "To Record from Microphone".

Dual-Track Recording

With this recorder, one-half of tape width is recorded at a time, permitting two-track recording. This two-track operation is accomplished in following manner:

1. After a reel of tape has been recorded, and all tape is wound onto take-up reel, turn "Tape Drive" control (5) to idle.

2. Remove reels from recorder, turning full reel over and placing it on right reel plate and empty reel on left reel plate.

3. Properly thread tape and proceed with recording.

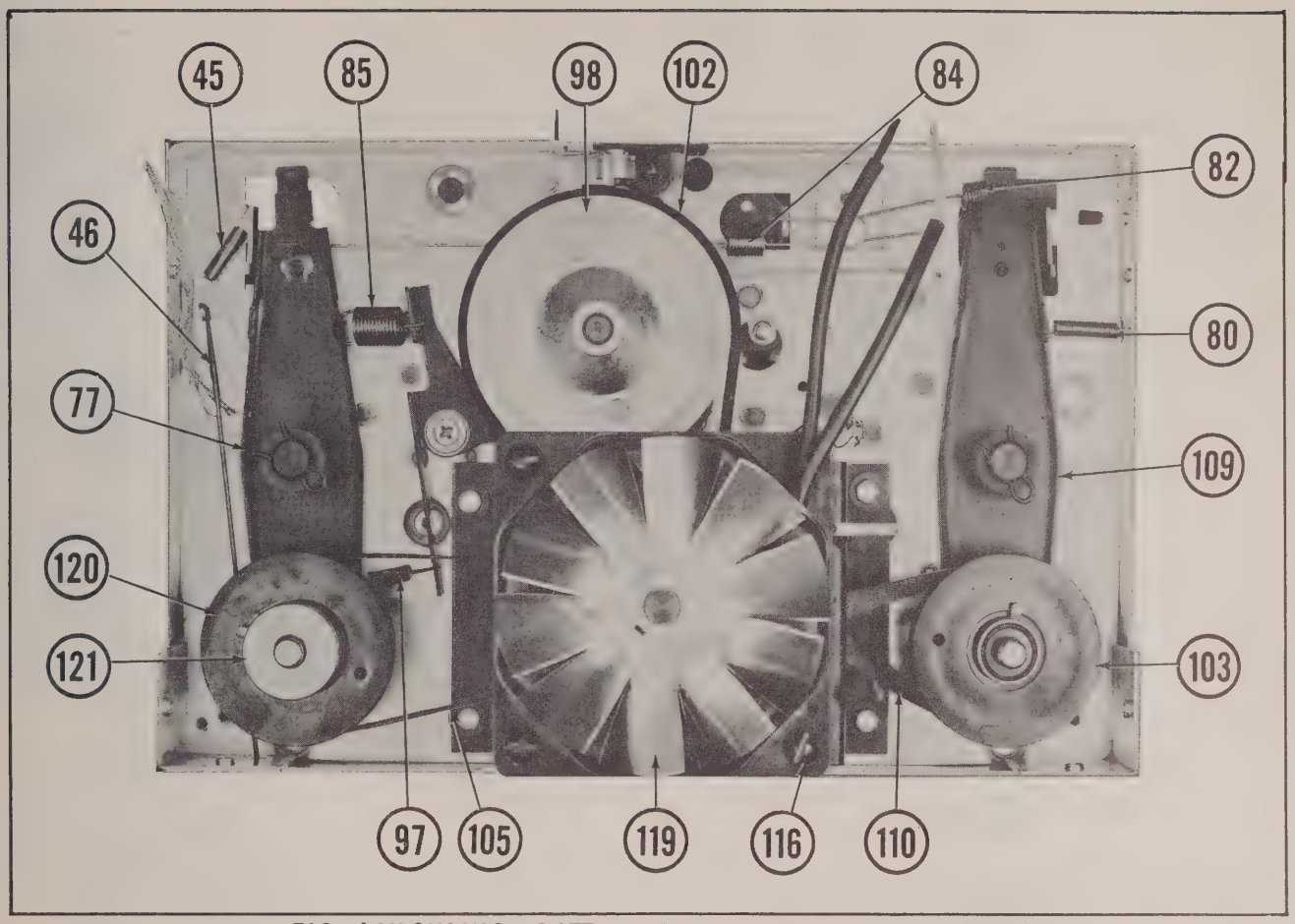


FIG. 4 MECHANISM BOTTOM VIEW WITH AMPLIFIER REMOVED

4. After this track has been recorded, first track is ready to be played without rewinding by reversing reels as described in Step 2 above.

To Play a Recording

1. Thread tape as described under "Threading Tape".

2. Turn "Tape Drive" control clockwise without pressing "Record-Edit" button.

3. Adjust "Volume" and "Tone" controls for desired listening level.

To Use an External Speaker

1. You may want to use a larger speaker than the one in recorder to improve frequency response. To do this, use speaker cable supplied as outlined in Step 2 Below.

2. Connect cable to external speaker with alligator clips. Plug cable into external speaker jack and play recorder through external speaker.

Caution: Do not connect plug into output jack unless external speaker is attached to plug, as output tube, transformer and tone control may be damaged.

To Edit and Splice Tape

Note: Since it is impossible to edit and splice one track without affecting the other, recordings to be edited should be limited to one track only.

1. Tape may be edited by cutting out unwanted portions, or by joining selections into another sequence. Announcements may be inserted between selections. Unused sections of tape can be spliced together for reuse.

2. For best results, cut tape at a slight diagonal, join ends together on glossy side with splicing tape and trim off any excess width.

Erasing Recorded Material

Any recording is automatically erased before a new one is put on the tape. To erase a recording without putting anything on tape, follow normal recording procedure, but leave "Volume" control set at its extreme counterclockwise position.

To Use as a Public Address System

1. Insert microphone plug into "Radio" jack.

2. Leave "Tape Drive" control on idle.

3. Speak into microphone and adjust "Volume" and "Tone" control for desired level.

4. Do not place microphone too close to speaker, as a feedback howl will result.

ADJUSTMENTS

All service work except cleaning of head and pressure roller and adjustments of head and pressure pad assembly requires removing unit from carrying case.

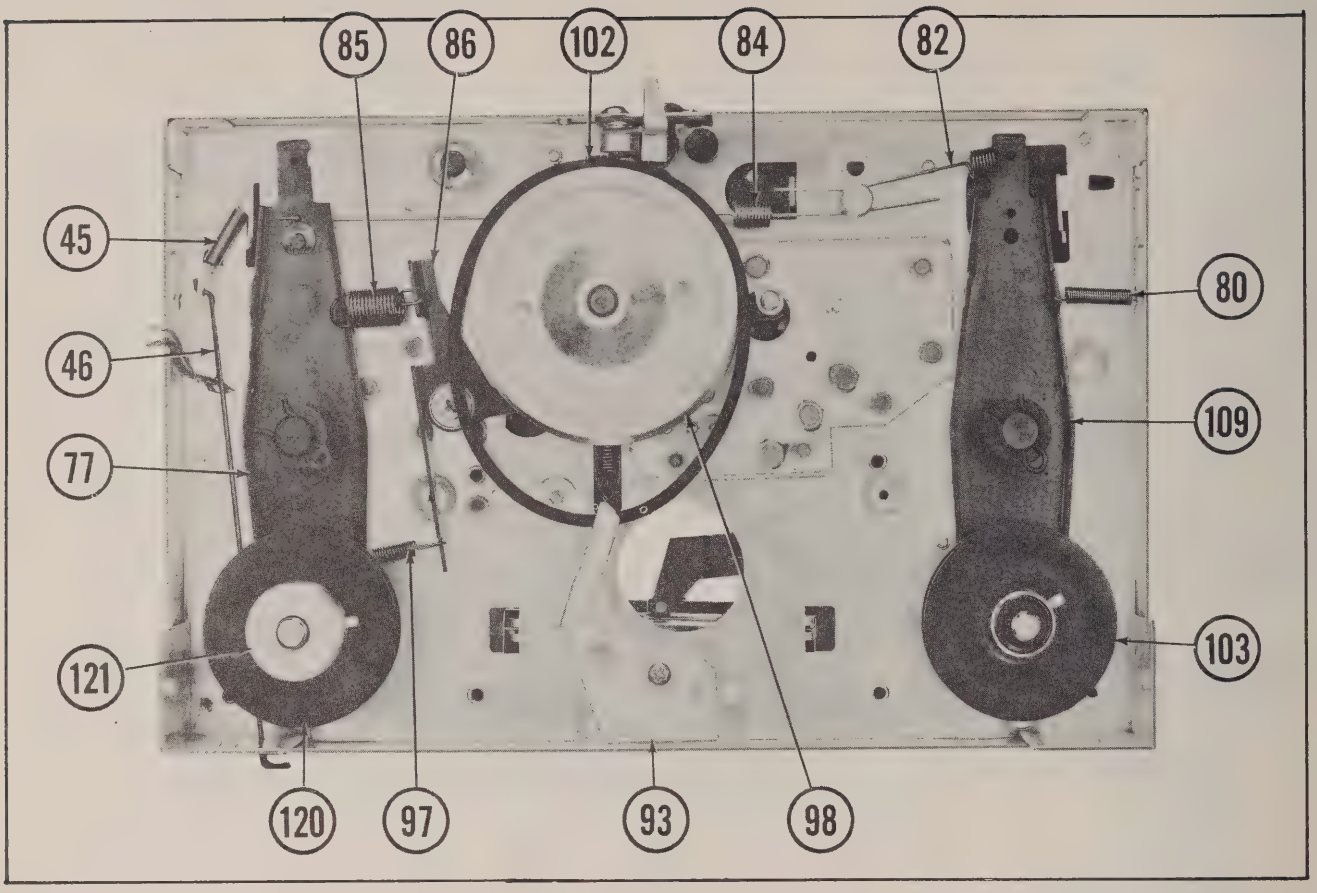


FIG. 5 MECHANISM BOTTOM VIEW WITH AMPLIFIER AND MOTOR REMOVED

1. To remove unit from carrying case, remove eight wood screws (11) from control panel escutcheon plate (See Exploded View).

2. Remove four screws from bottom of case and carefully lift unit straight up and out.

Spindle End Play Adjustments

Spindles (32) should have from 1/32" to 1/16" of up and down movement. Loosen set screw in pulleys (103 and 120) and move pulley up or down until correct amount of end play is obtained.

Brake Adjustment

1. Bend tab "A" (See Exploded View) on take-up arm (77) and tab "B" (See Exploded View) on take-up lever (86) joined by take-up spring (85) until tabs are perpendicular to plate.

2. Plug line cord in outlet, turn on motor and amplifier switches, place tape drive knob in idle and high-speed knob in "Neutral".

3. Place full reel of tape on take-up spindle, but do not thread, and turn high-speed knob to "Rewind" position. Adjust tab "C" until take-up spindle rotates. Then readjust until it stops rotating.

4. Place full reel on feed spindle, but do not thread tape. Turn high-speed knob to "Wind" position. Adjust tab "D" until feed spindle rotates and readjust until it stops rotating.

5. Since there may be interaction between these adjustments, Steps 3 and 4 may have to be repeated.

Take-up Tension Adjustment

If take-up tension is not properly adjusted, flutter will occur on record and playback. This is particularly noticeable at 3 3/4 ips and during initial winding of tape on take-up reel. Do not adjust if flutter occurs during first few feet of tape take-up. This is normal and recording should not be made on this porition.

1. Place a full reel of prerecorded tape on feed spindle (right), thread as for playback, and wind about 5 feet of tape on take-up reel. Use small (5") reels and tape recorded at 3 3/4 ips.

Note: Footage indicator belt must be on pulleys.

2. Check take-up reel action by slowly turning Record-Play knob to Play. Take-up reel should start revolving at same time pressure roller (33) engages with capstan shaft "F". If adjustment is correct, there should be no tape overrun before it starts to take up or flutter in sound. If adjustment is required, proceed with Steps 3 and 4.

3. Bend tab "B" on take-up lever (86) to right or left until proper take-up action with no overrun or flutter is obtained and tape from feed reel to heads shows no evidence of vibrating.

4. Slight additional adjustment may be obtained by bending tab "A" on take-up arm (77) and tab "G" on take-up lever (86).

Play-Record Head Adjustment

Head (31) must be perfectly aligned with tape; if not, low output, loss of high frequencies or track overlap may result.

To align head (31), proceed as follows:

1. First adjustment is for output and frequency response. This adjustment must be made with a 3000-cycle tape, recorded by a unit in good operating condition. Connect an output meter across speaker voice coil of unit to be adjusted. While playing back the 3000-cycle note tape, move head back and forth on mounting until maximum amplitude on output meter is achieved. Make sure that head (31) height is correct. Head height should be correct if maximum gain is achieved.

If a 3000-cycle note tape cannot be made, use a recording with high note content and make adjustment described above.

Erase Head Adjustment

Erase head (29) and bracket assembly (25) have been prealigned at factory and no adjustments are provided. To replace erase head (29), Play-Record head (31) must be removed. After erase head is installed, Play-Record head must be realigned. This insures proper frequency response. (See Play-Record Head Adjustment).

CLEANING

Record and erase heads, capstan shaft "F" (See Exploded View) and pressure roller (33) accumulate tape coating residue, which is worn off the tape as it passes these parts. This can cause distortion, weak output and poor erasure. Use a soft cloth and alcohol to clean head surfaces, capstan and pressure roller.

LUBRICATION

Lubricants applied at time of manufacture should last a long time. Approximately once a year, or when parts are replaced, lubricate as follows:

With No. 20 Motor Oil

1. Take-up reel arm (77) bushing.
2. Feed spindle arm (109) bushing.
3. Spindle (32) bearings.
4. Flywheel (98) bearings.

With Staput No. 312 Grease or Lubriplate

1. Pressure plate (43) at slide button and guide on right side.

2. On stud of cam and bushing assembly (63).

Caution. Do not oil motor bearings unless absolutely necessary. Excess oil will only be thrown off and cause slipping of pulley and rollers. Always use as little oil as possible. If oil should get on pulleys and rollers, wipe off with a petroleum solvent such as alcohol. Do not use carbon tetrachloride.

AMPLIFIER ADJUSTMENT

Following adjustments should be made whenever circuit components are replaced or repaired in amplifier.

These adjustments must be made with set turned on and in "Record" position, but with no signal input.

1. Adjust "Oscillator Coil", adjustment (L2) for 52.5KC reading on frequency meter.

2. Adjust "Meter" adjustment (R3) so that needle on meter rests directly over black dot at left side of meter. With (R3) properly adjusted, needle should move slightly when set is turned on and off.

3. To adjust "52.5KC Trap", volume must be set at maximum. Adjust (L1) for minimum 52.5KC reading at external amplifier jack.

4. Set (R4) "Hum Adjust" for minimum reading across load at "ext. speaker jack" with volume and treble set at maximum.

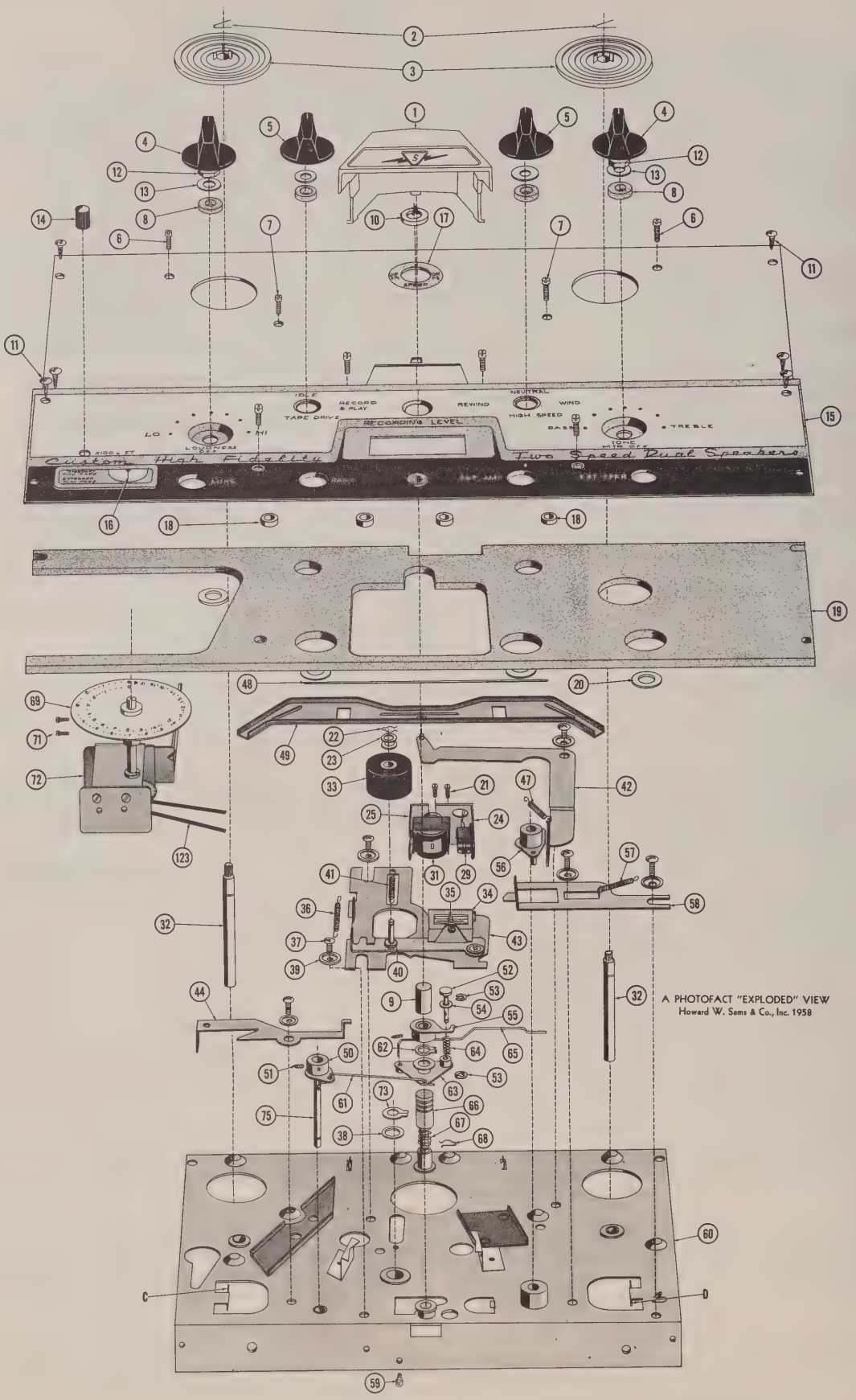


FIG. 6A EXPLODED VIEW OF PARTS ABOVE BASEPLATE

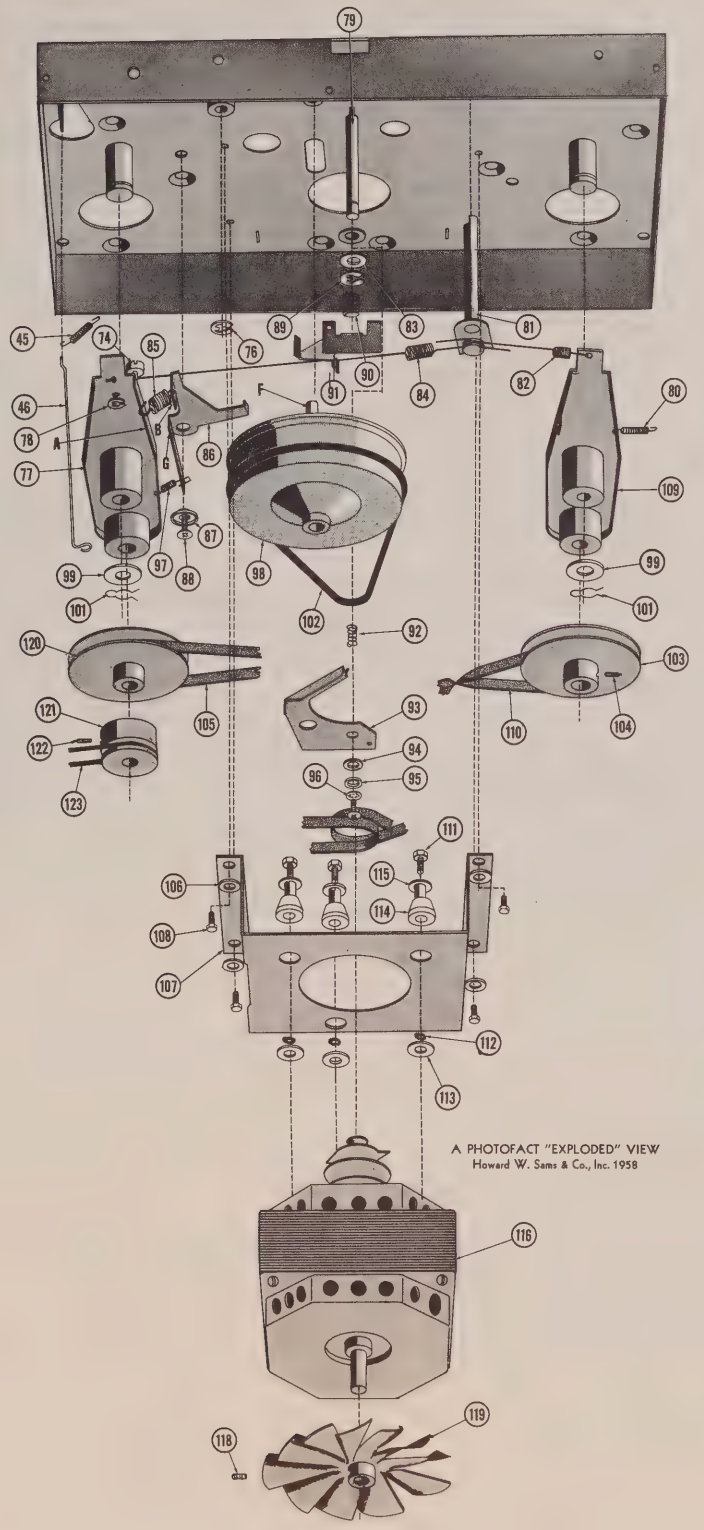


FIG. 6B EXPLODED VIEW OF PARTS BELOW BASEPLATE

TROUBLE CHART

Symptom	Cause	Remedy
Will not take up tape properly.	1. Spindle (32) binding.	1. Lubricate.
	2. Belt (110) slipping.	2. Clean motor pulley and pulley (103).
	3. Belt (110) broken.	3. Remove bracket (107) and replace belt (110).
	4. Set screw loose in take-up pulley (103).	4. Tighten and leave 1/32" to 1/16" end play in spindle.
	5. Pulley (103) broken.	5. Replace pulley.
Fast forward will not function properly.	1. See above except Step 2.	1. See above except Step 2.
Fast rewind will not function properly.	1. Spindles (32) binding.	1. Lubricate.
	2. Belt (110) slipping.	2. Clean motor pulley and pulley (103).
	3. Belt (110) broken.	3. Remove bracket (107) and replace belt (110).
	4. Set screw loose in rewind pulley (120).	4. Tighten and leave 1/32" to 1/16" end play in spindle.
	5. Rewind pulley (120) broken.	5. Replace pulley.
Speed variation or wow.	1. Dirty motor pulley, flywheel and capstan (98), and pressure roller (33), causing slippage.	1. Clean with a petroleum solvent, not carbon tetracholoride. If pressure roller (33) is oil-soaked, replace.
	2. Out of adjustment, causing too much feed reel drag.	2. Check adjustments as described under "Take-up Tension Adjustment".
	3. Flat spot on pressure roller (33), causing a rapid thumping sound while unit is running.	3. Replace pressure roller (33).

PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Mic Preamplifier	12AU7A	
V2	AF Amplifier	12AX7	
V3	Meter Amp. -Bias Osc.	12AU7A	
V4	Output	6V6GT	
V5	Rectifier	6X5GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	Sylvania PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	◓40	350	161-3031		B0260	FP217.87		T-101	R2478*
B	■40	300			BR4035	TC78		MT-4540	
C	▲40	300							
C2	25	25	161-1027	PRS25V25	BBR25-25	TC26	TD-25-25	MT-0225	TVA-1205

* Non-Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	Sylvania PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	20			N750-DI20	DTN-20	C10Q2U		5TCU-Q2	N750
C4	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C5	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C6	75			N750-DI75	DTN-75	C10Q75U	NT-5475	5TCU-Q75	N750
C7	1500					1R5D15		MS-215	10%
C8	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C9	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C10	470				D6-471	5R5T47		MS-347	10%
C11	1500					1R5D15		MS-215	10%
C12	2000			BPD-002	DD-202	BYA10D2	DC522	5HK-D2	
C13	75			DI-000075	DD-750	L10Q75	UC-5475	5GA-Q75	
C14	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C15	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C16	470				D6-471	5R5T47		MS-347	10%
C17	1500			1464-0015		1R5D15	MCB456	MS-215	10%
C18	1000	1000	169-0066	HVD15-1000	DD-102	BYA10D1M	DC3021	5HK-D1	
C19	470				D6-471	5R5T47		MS-347	10%
C20	470				D6-471	5R5T47		MS-347	10%
C21	10			N750-DI10	DTN-10	C10Q1U	NT-541	5TCU-Q1	N750
C22	10			N750-DI10	DTN-10	C10Q1U	NT-541	5TCU-Q1	N750
C23	10000	1500	169-0069	DAC-27	DD16-103	HVE16S1		BL-S10	
C24	10000	1500	169-0069	DAC-27	DD16-103	HVE16S1		BL-S10	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	Sylvania PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	152-0048	BT-66	A47F3-500K	Q13-133X	UT-427	Loudness, Tap@100K
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1*	SWE-12	76-1	US-26	Amp. Power
R2A	500K	½	152-0047	B-60	A47-500K-Z	Q13-133	U48	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1*	SWE-12	76-1	US-26	Motor Power
R3A	50K	½	153-0156	BX-31	A47-50K-S	B11-123	U35	Meter Adjustment
B	Shaft			Not Req.	FKS-1/4	SK2	Not Req	
R4	200Ω	2(WW)	153-0144				FL-200	Hum Balance

* Use KR on CRL "red label" controls and KB on "blue label" controls.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Sylvania PART No.	NOTES
R5	1meg			
R6	220K			
R7	4700Ω			
R8	470K			
R9	470K			
R10	220K			
R11	4700Ω			
R12	100K			
R13	1500Ω			
R14	150K			
R15	220K			
R16	220K			
R17	2200Ω			
R18	68K			

PARTS LIST AND DESCRIPTIONS (Continued)
RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	Sylvania PART No.	NOTES
R19	560Ω	1		
R20	270Ω			
R21	1meg			
R22	1meg			
R23	62K 5%			
R24	100K 5%			
R25	56K			
R26	47K			
R27	10K			
R28	470K			
R29	220K			
R30	470K			
R31	1000Ω	10(WW	187-0026	
R32	15K			
R33	3.9Ω			

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	Sylvania PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @.38A	560VCT @.060A	6.3V @2A	141-0077		P3048①			22R01①	R5B①

①Use original shields.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	Sylvania PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	5000Ω	4Ω Tap@ 1-2Ω	143-0068	Z1001	A-2902①	AU-608	A-3850	24S64 ①	S-51X	①Drill new mounting hole.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	Sylvania PART No.	QUAM PART No.	NOTES
SP1	6"	PM	3-4Ω		6A21	Parallel and Phase
SP2	6"	PM	3-4Ω		6A21	

COILS

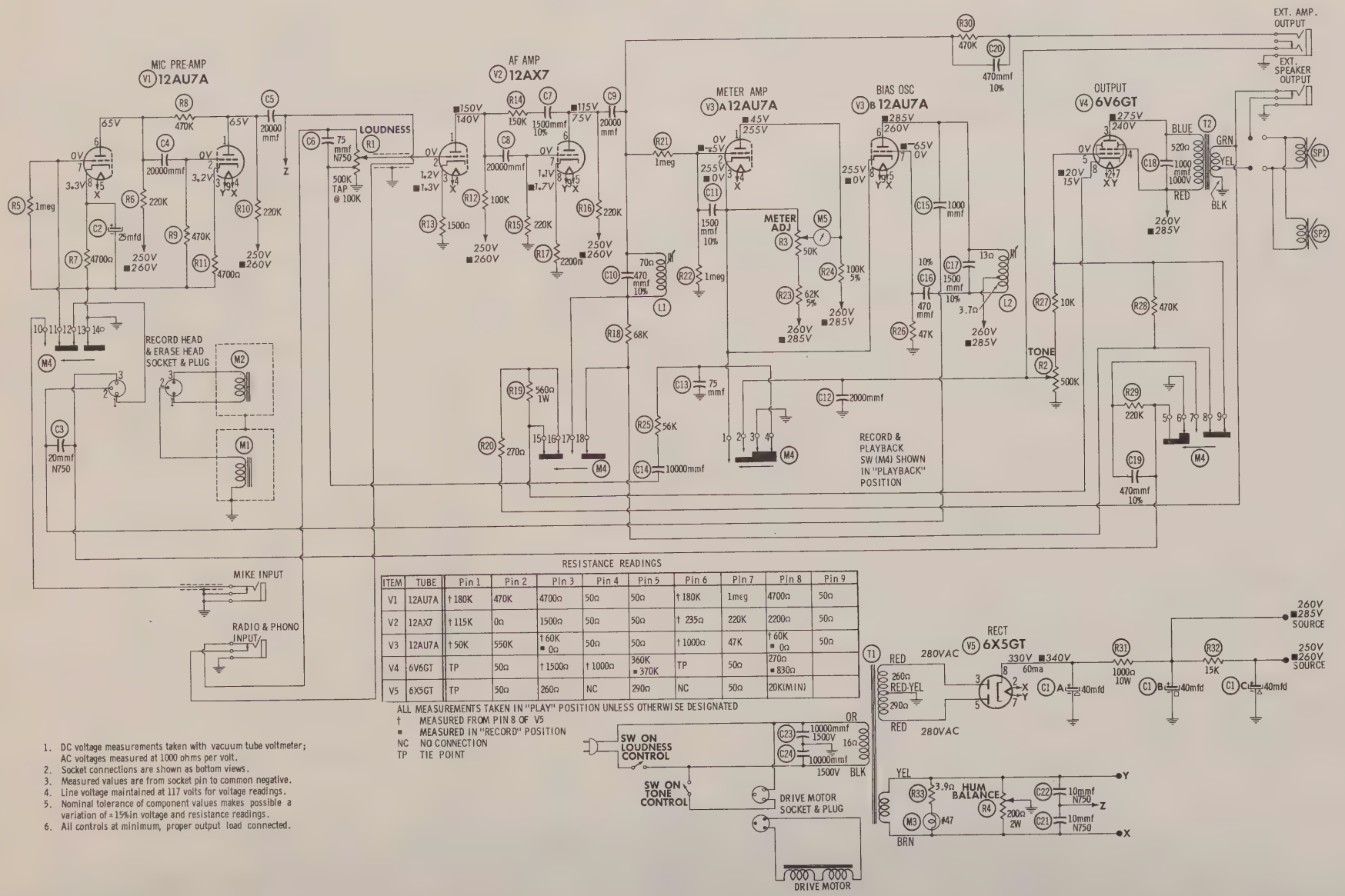
ITEM No.	USE	Sylvania PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	52.5KC Trap	118-0034					
L2	Bias Osc.	113-0043					

MISCELLANEOUS

ITEM No.	PART NAME	Sylvania PART No.	NOTES
M1	Erase Head	962-0003	
M2	Record Head	962-0002	
M3	Lamp		#47
M4	Switch	571-0024	Record-Play (Slide Type)
M5	Meter	961-0001	Recording, Level
	Jack	424-0004	External Amp. Output
	Jack	424-0005	External Speaker, Mike, Radio, Phono Input, 3 Used

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)



RESISTANCE READINGS

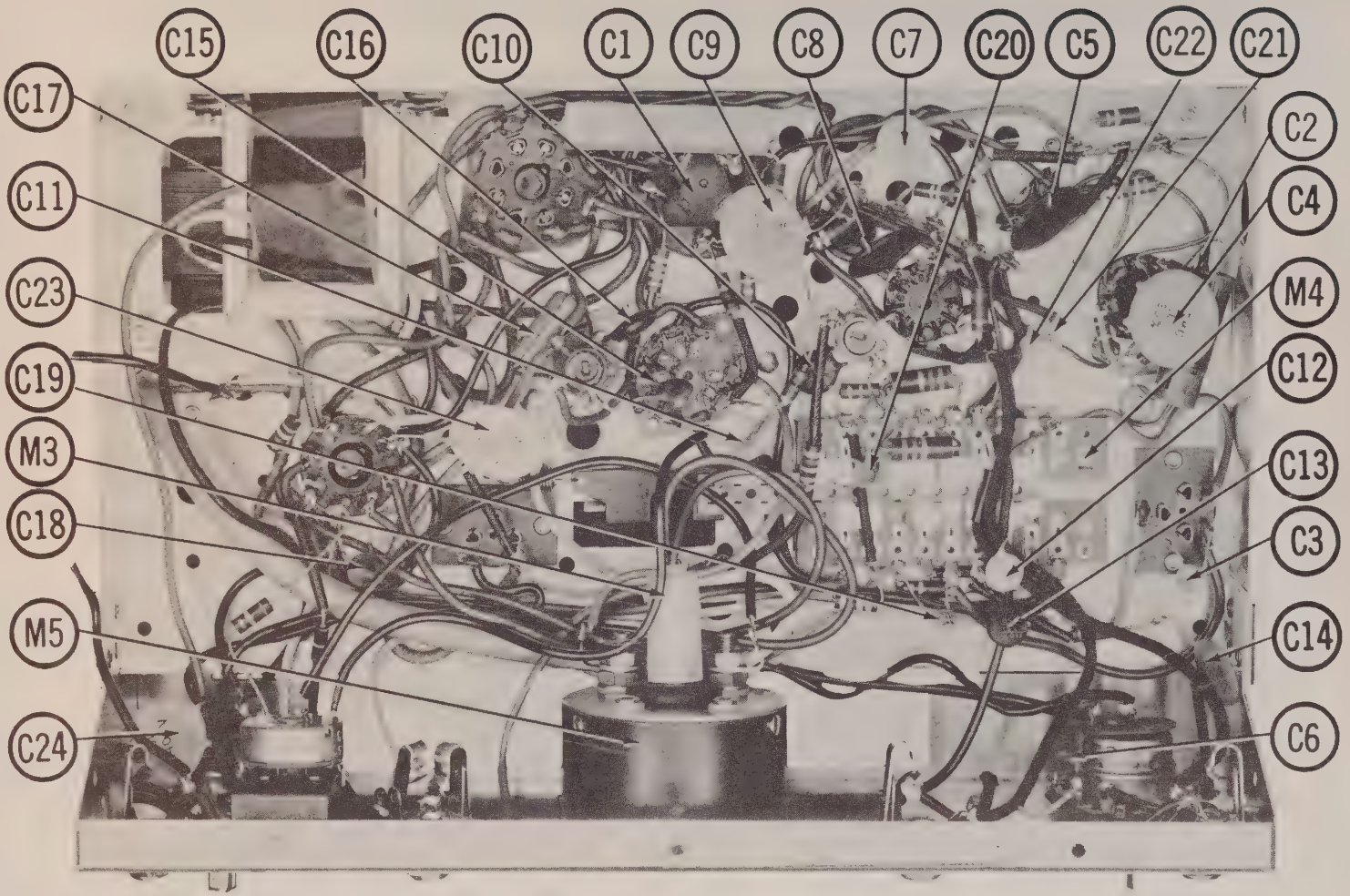
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU7A	† 180K	470K	4700Ω	50Ω	50Ω	† 180K	1meg	4700Ω	50Ω
V2	12AX7	† 115K	0Ω	1500Ω	50Ω	50Ω	† 235Ω	220K	2200Ω	50Ω
V3	12AU7A	† 50K	550K	† 60K ■ 0Ω	50Ω	50Ω	† 1000Ω	47K	† 60K ■ 0Ω	50Ω
V4	6V6GT	TP	50Ω	† 1500Ω	† 1000Ω	360K ■ 370K	TP	50Ω	270Ω ■ 830Ω	
V5	6X5GT	TP	50Ω	260Ω	NC	290Ω	NC	50Ω	20K(MIN)	

ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE DESIGNATED
† MEASURED FROM PIN 8 OF V5
■ MEASURED IN "RECORD" POSITION
NC NO CONNECTION
TP TIE POINT

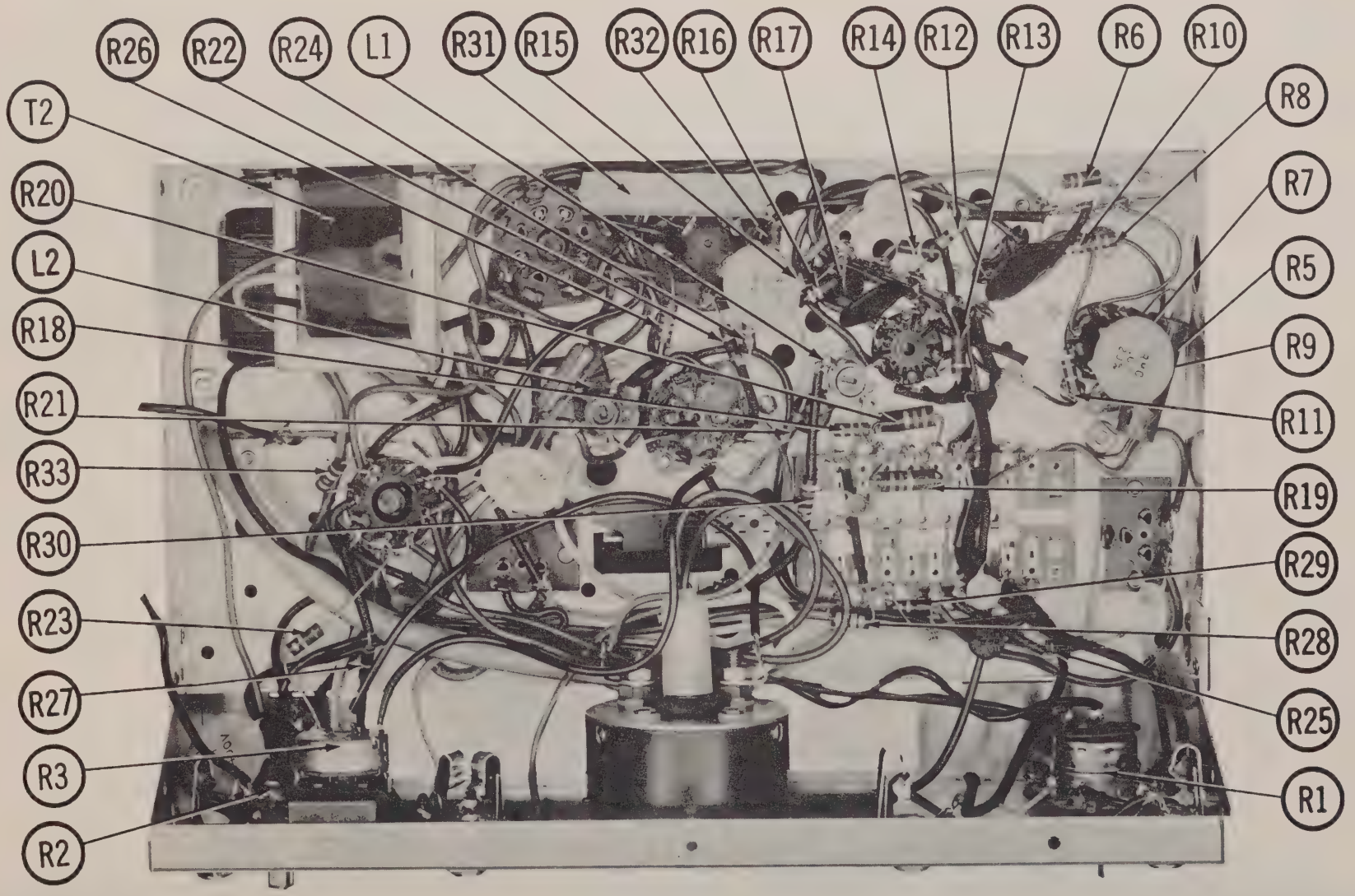
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

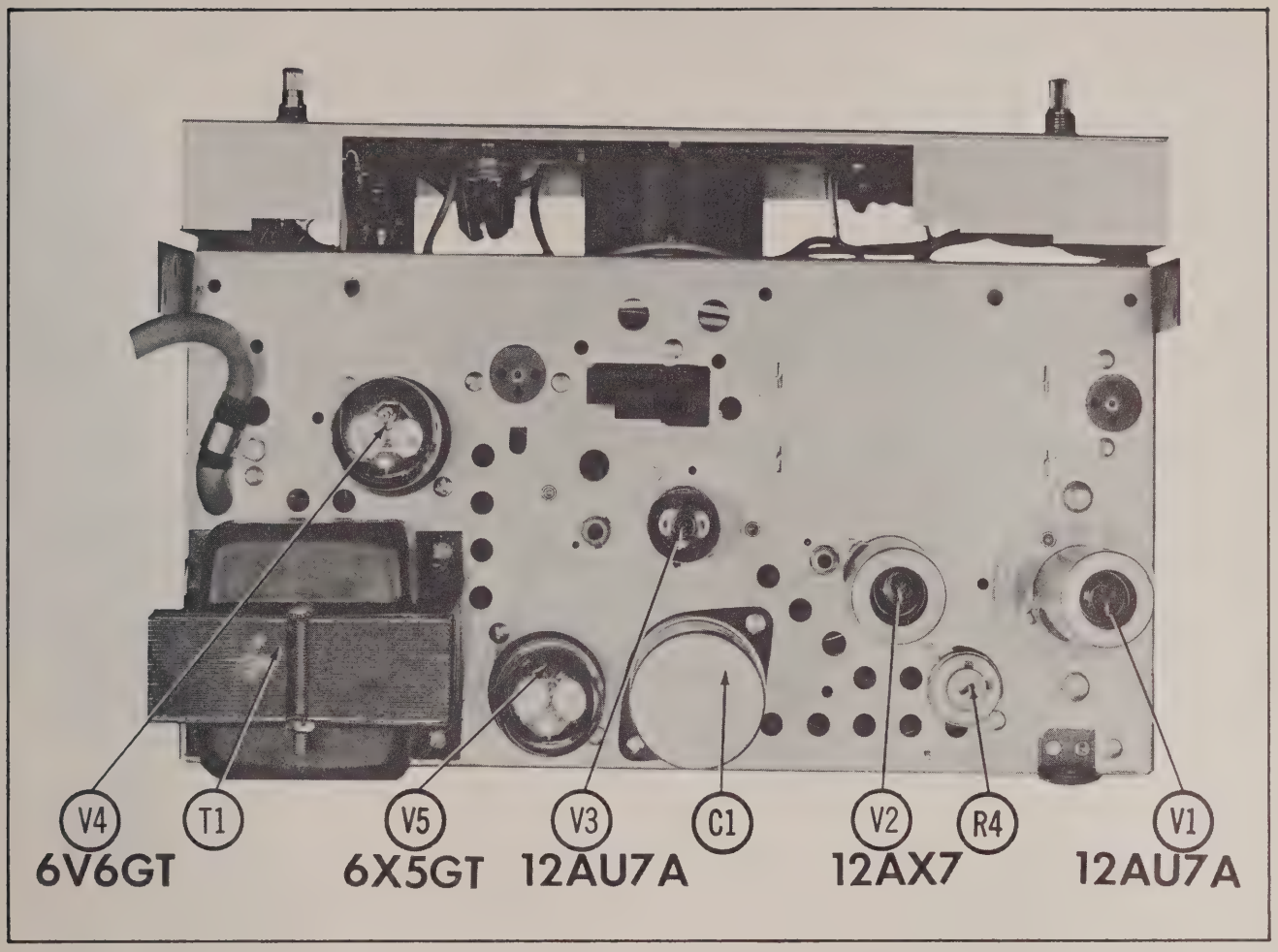
404-10



CHASSIS BOTTOM VIEW-CAPACITOR AND MISC IDENT.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENT.



CHASSIS-TOP VIEW

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1	498-0016	Head Cover
2	554-0063	Hairpin Retainer
3	960-0001	Reel Plate Ass'y.
4	954-0014	Off, Loudness, Tone Motor Off Knob
5	954-0015	Record and Play, Tape Drive, Rewind, High Speed Knob
6	551-0041	Machine Screw (#6-32 x 1/2" Phil. Rd. Hd.)
7	551-0043	Machine Screw (#6-32 x 3/16" Phil. Rd. Hd.)
8	553-3001	Felt Washer
9	954-0016	Record and Edit Knob
10	553-0034	Rubber Washer
11		Wood Screw (#6 x 1/2" Phil. Rd. Hd.)
12		Hex Nut 3/8"-32 (Brass)
13		Flat Washer
14	954-0017	Indicator Footage Knob
15	714-0110	Escutcheon Ass'y. (A)
	714-0111	Escutcheon Ass'y. (B)
16	722-0061	Window Dial (Clear)
17	722-0062	Speed Control Indicator Escutcheon
18		Spacer
19	776-0010	Top Cover Baffle
20	553-4012	Fibre Washer
21		Machine Screw (#6-32 x 1/4")

Ref. No.	Part No.	Description
22	554-0067	Retainer
23	553-4013	Cloth Washer
24		Head Ass'y.
25	934-0010	Head Mounting Bracket
26	193-0017	Ground Wire and Lug
27		Flat Washer
28		Screw (#2-56 x 3/16")
29	962-0003	Erase Head (8026)
30	420-0008	3-Prong Plug
31	962-0002	Record Head and Adaptor
32	922-0016	Spindle Ass'y. (Tape Wind and Take Up)
33	923-0023	Pressure Roller Ass'y.
34	949-0016	Pressure Shoe Ass'y .
35	496-0180	Pressure Shoe Spring
36	496-0174	Pressure Roller Spring
37		Machine Screw (#6-32 x 1/4")
38		Flat Washer
39	554-0069	Slide Button
40	933-0032	Pressure Roller Arm Ass'y.
41	496-0171	Slide Return Spring
42	933-0033	Brake Lever and Pin Ass'y.
43	918-0007	Pressure Plate and Spring Ass'y.
44	933-0028	Lever (B)
45	496-0182	Spring (B)
46	935-0025	Rod Linkage (B)
47	496-0171	Return Spring
48	496-0170	Brake Plate Spring

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
49	918-0008	Brake Plate
50	926-0019	Cam and Bushing Ass'y.
51	551-6601	Set Screw (#6-32 x 3/8" Slab Hd.)
52		Plunger
53	554-0049	Retainer Ring
54		Flat Washer
55	933-0024	Catch and Bushing
56	926-0017	Hub Ass'y.
57	496-0163	Return Spring
58	933-0023	Interlock Lever
59		Machine Screw (#6-32 x 1/4" Phil. Pan Hd.)
60		Motorboard Ass'y.
61	935-0024	Drive Link Rod
62	554-0070	Retainer Ring
63	926-0016	Cam and Bushing Ass'y.
64	496-0173	Plunger Spring
65	935-0023	Take-up Brake Rod
66	937-0020	Plunger Knob and Shaft Ass'y.
67	496-0168	Compression Spring
68	496-0169	Plunger Detent Spring
69	937-0021	Dial Ass'y.
70	554-0071	"O" Ring
71		Machine Screw (#6-32 x 1/4")
72	954-0018	Tape Footage Indicator
73	554-0064	Retainer
74	926-0021	Adjustment Cam (B)
75	937-0018	Motion Shaft (Left)
76	554-0068	Retainer
77	933-0027	Take-up Reel Arm Ass'y.
78	554-0076	Retainer (B)
79	937-0019	Control Shaft
80	496-0177	Brake Spring (Right)
81	937-0023	Cam and Stud Shaft Ass'y .
82	496-0176	Tape Tension Spring (Right)
83	553-0035	Rubber Washer
84	496-0175	Tape Tension Spring (Left)
85	496-0178	Take-up Spring
86	933-0037	Take-up Lever
87	554-0069	Slide Button
88		Machine Screw (#6-32 x 1/4")
89	554-0066	Retainer
90	496-0172	Control Shaft Return Spring
91	934-0008	Shaft and Edit Lever Ass'y. Bracket
92	496-0168	Compression Spring
93	933-0025	Belt Transfer Fork
94		Flat Washer
95		Lock Washer, #6 Int. T.
96		Flat Washer
97	496-0179	Brake Spring (Left)
98	937-0022	Flywheel and Shaft Ass'y.
99	553-2015	Flat Washer
100	553-2016	Flat Washer
101	554-0065	Hairpin Retainer (Large)
102	923-0024	Flywheel Belt (Round-5 3/4" Long)
103	923-0022	Pulley and Flange Ass'y.
104	551-6601	Set Screw (#6-32 x 3/8")
105	923-0025	Spindle Drive Belt (Take-Up Flat)
106		Motor and Lug Ass'y. Bracket
107		Flat Washer
108		Machine Screw (#8-32 x 3/16")
109	933-0026	Feed Reel Arm Ass'y.
110	923-0025	Drive Belt (Wind-Rewind, Flat)
111		Machine Screw (#8-32 x 5/8")
112		Lock Washer
113		Flat Washer
114		Rubber Grommet
115		Eyelet
116	924-0010	Motor and Bracket Ass'y .
117	420-0008	3-Prong Plug
118	551-0035	Set Screw (#8 x 2/16" Allen Hd. Cup Pt.)
119	926-0018	Fan and Hub Ass'y.
120	923-0021	Pulley and Flange Ass'y.
121	923-0020	Footage Meter Pulley
122	551-6602	Set Screw (#6-32 x 1/2" Slot Hd.)
123	923-0019	Footage Indicator Belt (Round-6 3/4" Long)

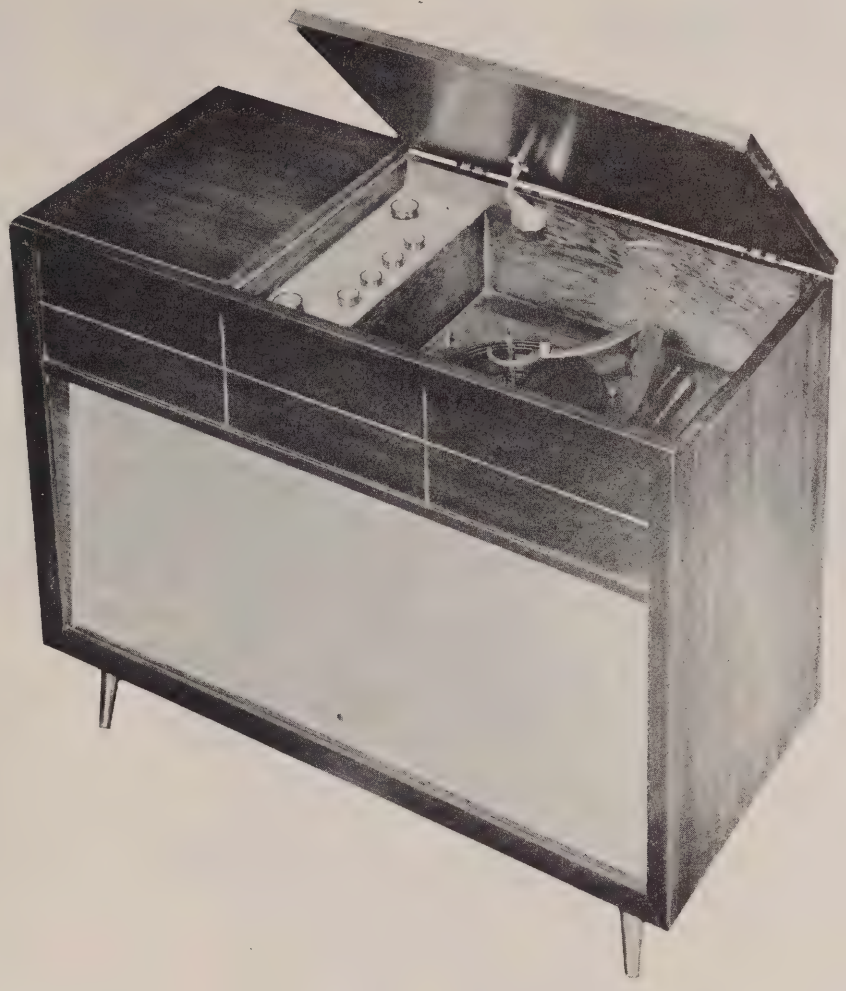
Note: (A) designates parts for Chassis 1-400-1
(B) designates parts for Chassis 1-400-2
Parts having no letter are used in all models.

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

ULTRATONE
MODELS 1210, 1211

ULTRATONE
MODELS 1210, 1211



ULTRATONE
MODELS 1210, 1211

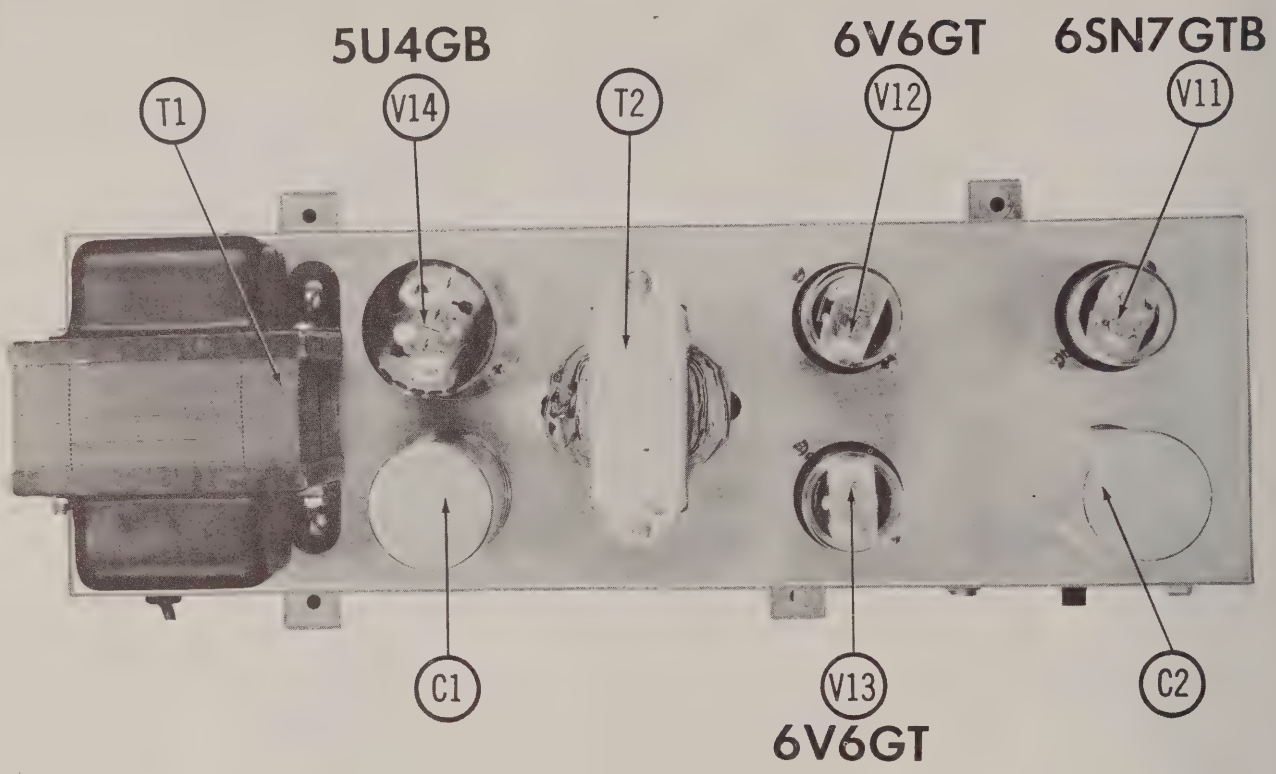
TRADE NAME	Ultratone Models 1210, 1211		
MANUFACTURER	Audio Industries, Michigan City, Indiana		
TYPE SET	AC Operated FM-AM Receiver With 4 Speed Automatic Record Changer		
TUBES	Fourteen		
POWER SUPPLY	105-125 Volts AC-60 Cycles	RATING	1 Amp. @ 117 Volts AC (110 Watts Without Motor)
TUNING RANGE - BROADCAST	540-1600KC	FREQ. MOD.	88-108MC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE V-M 1200A - PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10

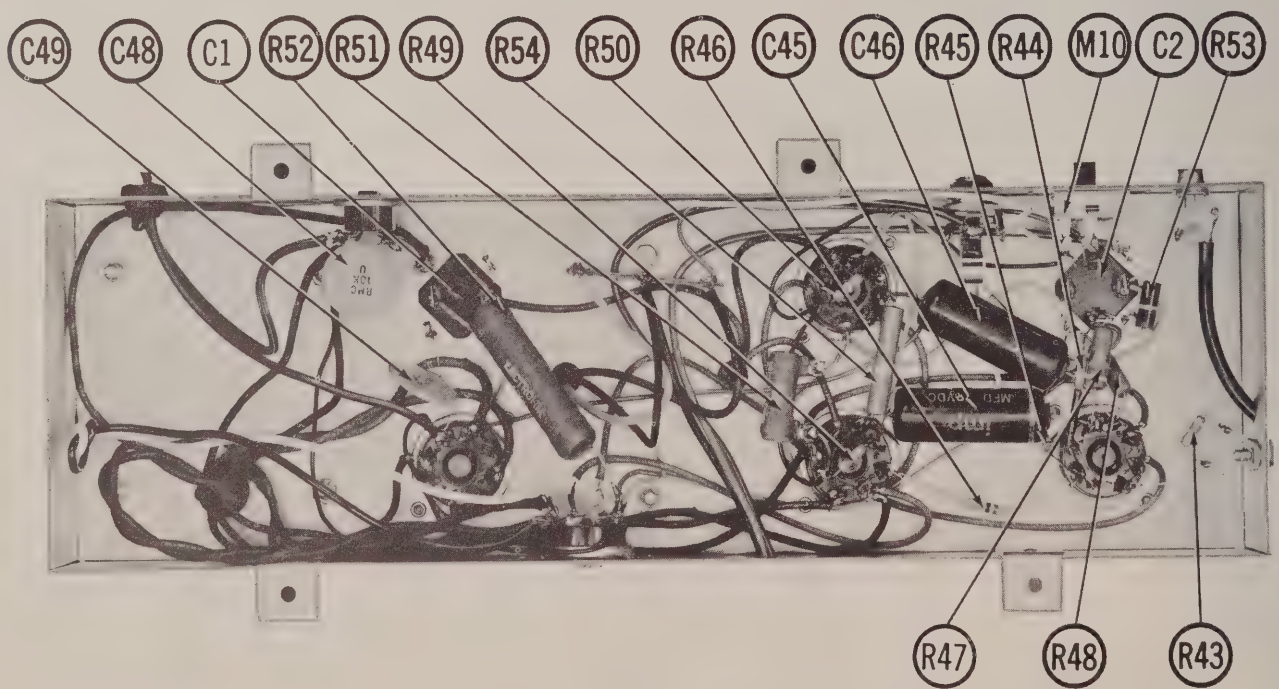
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

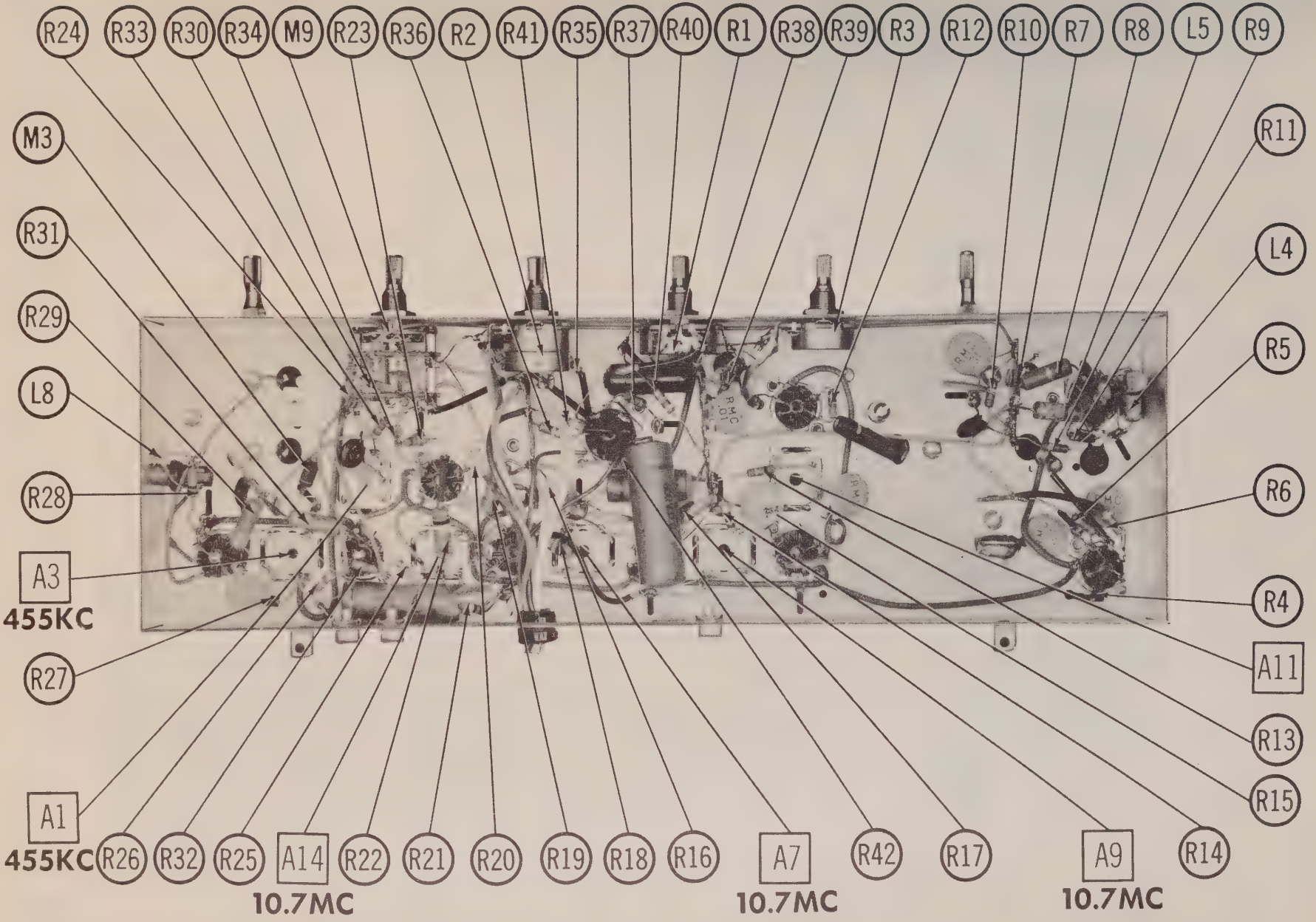
H136R



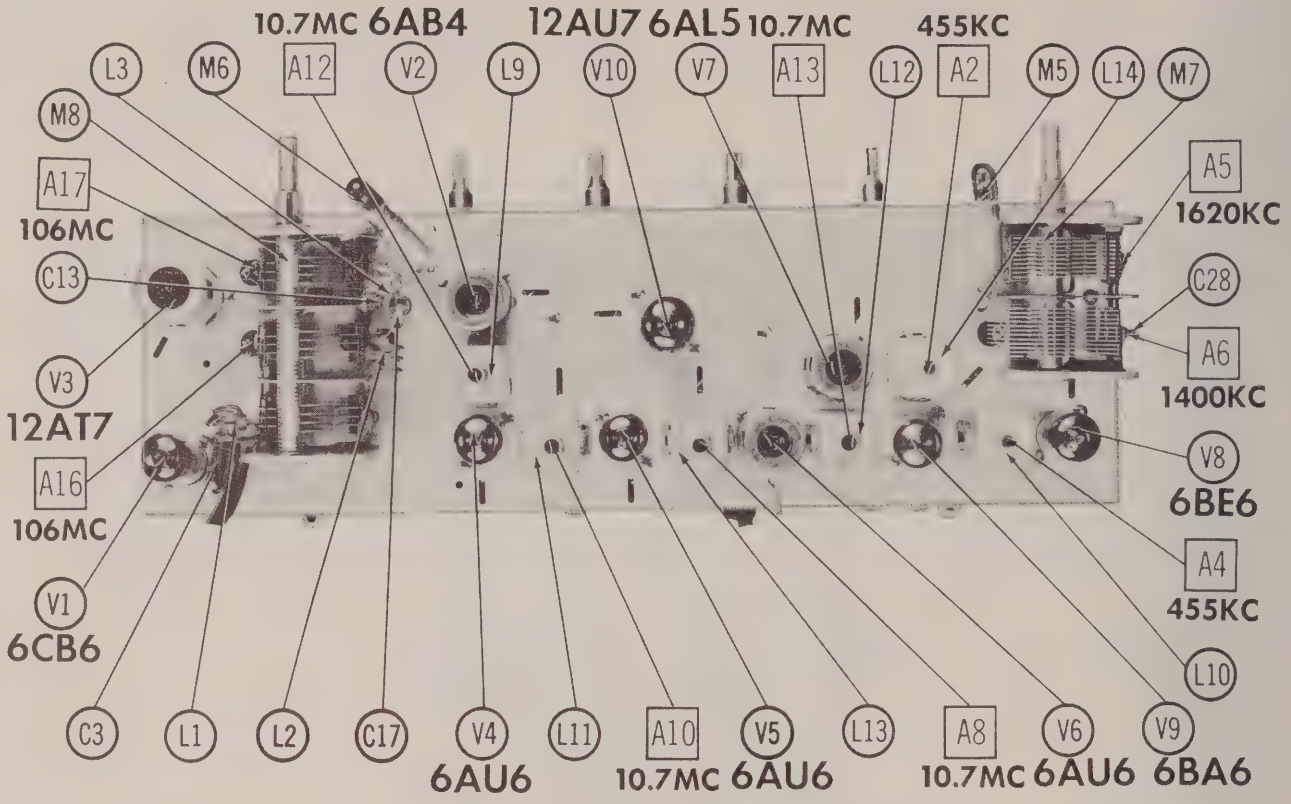
AMP CHASSIS — TOP VIEW



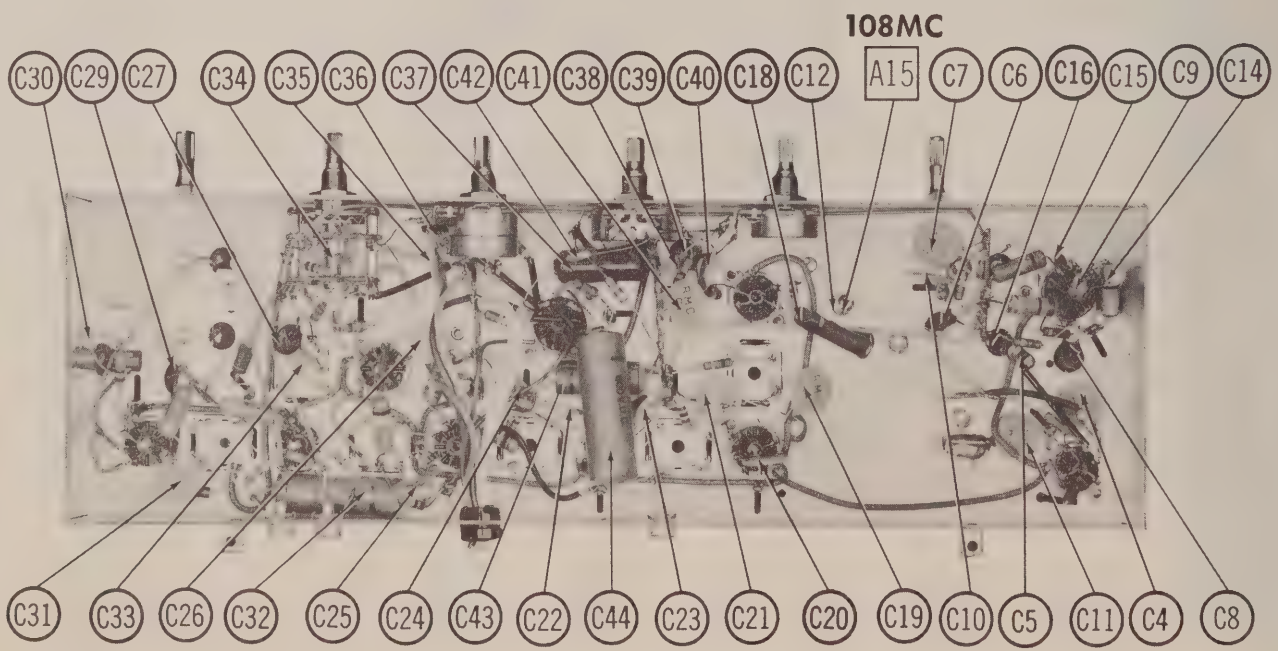
AMP CHASSIS — BOTTOM VIEW



TUNER CHASSIS BOTTOM VIEW — RESISTOR IDENTIFICATION



TUNER CHASSIS — TOP VIEW



TUNER CHASSIS BOTTOM VIEW — CAPACITOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.
To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial.
AFC "Off" during FM alignment.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6 (V8). Low side to chassis.	455KC (400∿Mod)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1620KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	"	1400KC	"	A6	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.05MFD	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A7, A8, A9, A10, A11, A12	Adjust for maximum deflection.
5.	"	High side to pin 1 (grid) of 6AU6 (V6). Low side to chassis.	"	"	"	DC probe thru 1Meg to point Ⓑ. Common to chassis.	A13	"
6.	"	"	"	"	"	DC probe thru 1Meg to point Ⓒ. Common to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.05MFD	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. thru 100K to point Ⓐ. Low side to chassis.	A7, A8, A9, A10, A11, A12	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	High side to pin 1 (grid) of 6AU6 (V6). Low side to chassis.	"	"	"	Vert. Amp. thru 100K to point Ⓑ. Low side to chassis.	A13	"
6.	"	"	"	"	"	Vert. Amp. thru 100K to point Ⓒ. Low side to chassis.	A14	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A13 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	300Ω Carbon Resistor	Thru dummy to FM ant. terminals.	108MC	FM	108MC	DC probe to point Ⓐ. Common to chassis.	A15	Adjust for maximum deflection.
8.	"	"	106MC	"	106MC	"	A16, A17	Adjust for maximum deflection. Rock tuning gang while adjusting A16.

FIG. 1

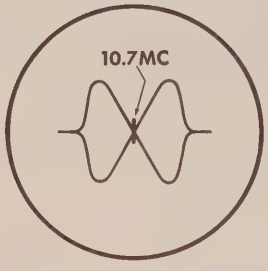
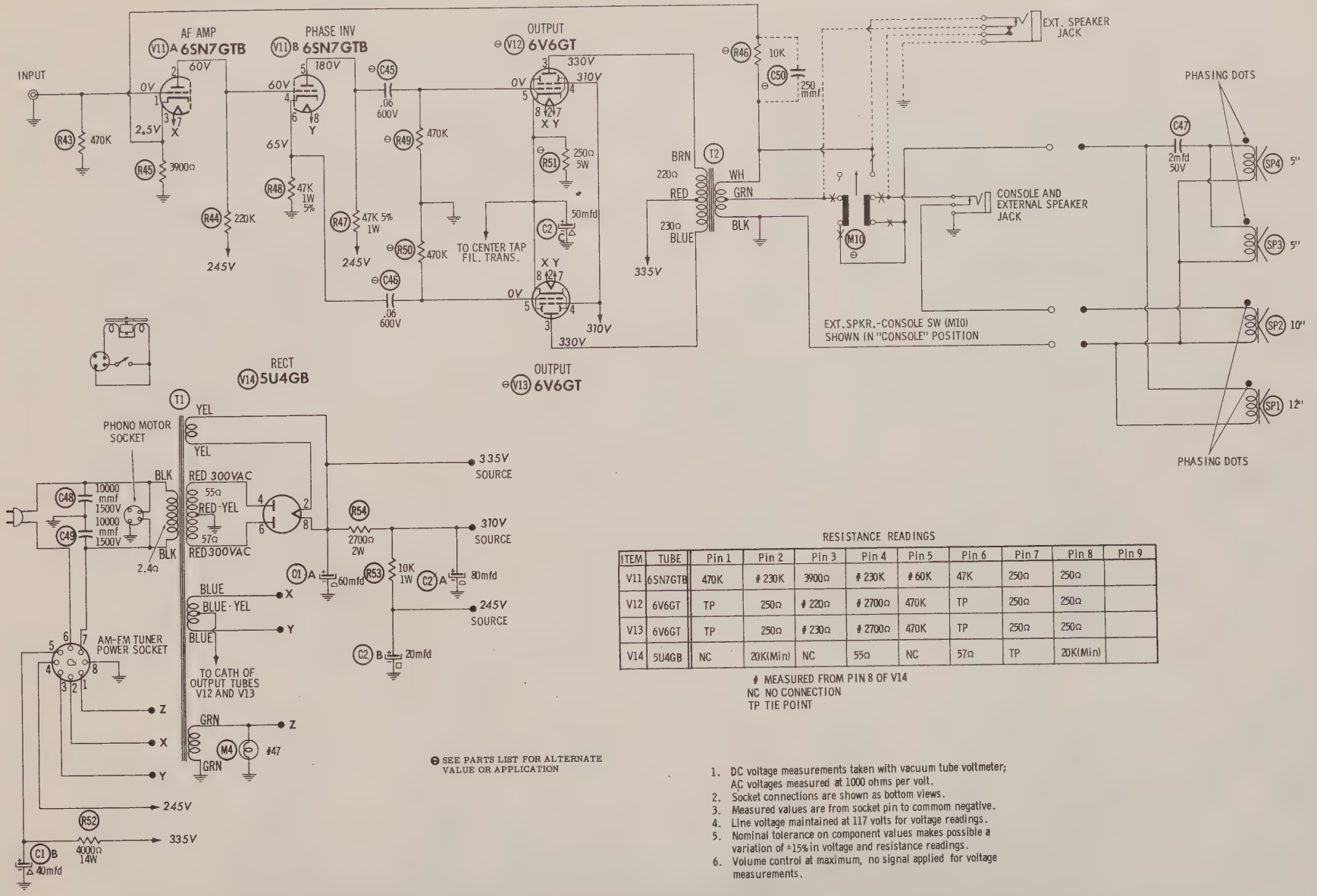


FIG. 2



RESISTANCE READINGS

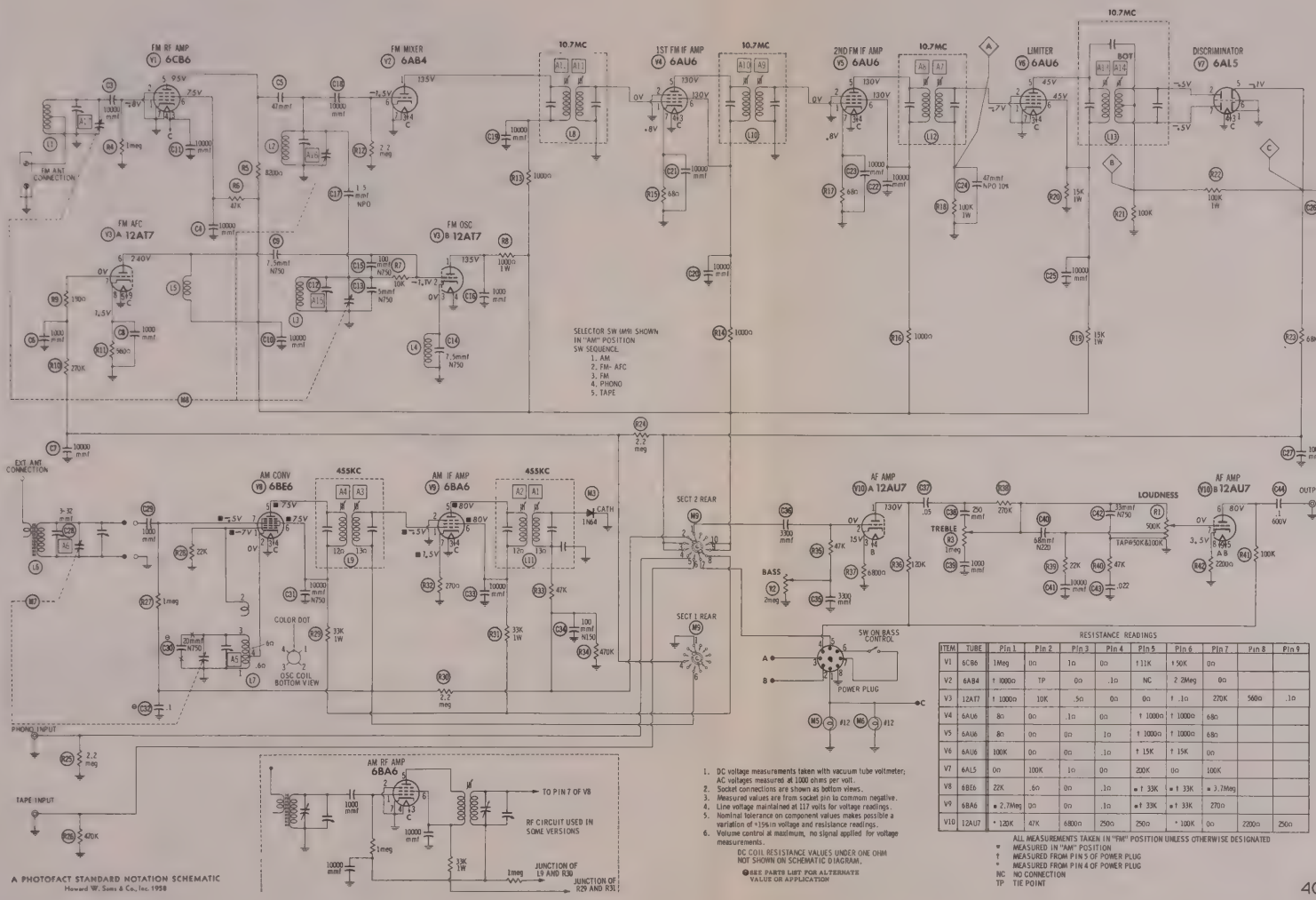
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V11	6SN7GTB	470K	# 230K	3900Ω	# 230K	# 60K	47K	250Ω	250Ω	
V12	6V6GT	TP	250Ω	# 220Ω	# 2700Ω	470K	TP	250Ω	250Ω	
V13	6V6GT	TP	250Ω	# 230Ω	# 2700Ω	470K	TP	250Ω	250Ω	
V14	5U4GB	NC	20K(Min)	NC	55Ω	NC	57Ω	TP	20K(Min)	

MEASURED FROM PIN 8 OF V14
NC NO CONNECTION
TP TIE POINT

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of +15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6	1Meg	0Ω	1Ω	0Ω	†11K	†50K	0Ω		
V2	6AB4	† 1000Ω	TP	0Ω	.1Ω	NC	‡ 2.2Meg	0Ω		
V3	12AT7	† 1000Ω	10K	.5Ω	0Ω	0Ω	† .1Ω	270K	560Ω	.1Ω
V4	6AU6	8Ω	0Ω	.1Ω	0Ω	† 1000Ω	† 1000Ω	68Ω		
V5	6AU6	8Ω	0Ω	0Ω	1Ω	† 1000Ω	† 1000Ω	68Ω		
V6	6AU6	100K	0Ω	0Ω	.1Ω	† 15K	† 15K	0Ω		
V7	6AL5	0Ω	100K	1Ω	0Ω	200K	0Ω	100K		
V8	6BE6	22K	.6Ω	0Ω	.1Ω	≈† 33K	≈† 33K	≈ 3.7Meg		
V9	6BA6	≈ 2.7Meg	0Ω	0Ω	.1Ω	≈† 33K	≈† 33K	270Ω		
V10	12AU7	* 120K	47K	6800Ω	250Ω	250Ω	* 100K	0Ω	2200Ω	250Ω

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
* MEASURED IN "AM" POSITION
† MEASURED FROM PIN 5 OF POWER PLUG
‡ MEASURED FROM PIN 4 OF POWER PLUG
NC NO CONNECTION
TP TIE POINT

404-11

PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	6CB6	
V2	FM Mixer	6AB4	
V3	FM Osc. - FM AFC	12AT7	
V4	1st FM IF Amplifier	6AU6	
V5	2nd FM IF Amplifier	6AU6	
V6	Limiter	6AU6	
V7	Discriminator	6AL5	

ITEM No.	USE	TYPE	NOTES
V8	AM Converter	6BE6	
V9	AM IF Amplifier	6BA6	
V10	AF Amplifier	12AU7	
V11	AF Amp. - Phase Inv.	6SN7GTB	
V12	Output	6V6GT	Note 1
V13	Output	6V6GT	Note 1
V14	Rectifier	5U4GB	

Note 1. Some versions may use type 6BQ5/EL84 in this application

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ULTRATONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▬60	400	1002	AFH2-61	B0462	FP263	TMD-56	D-240	TVL-2770
B	▲40	400							
C2A	▬80	400	1003	AFH3-46	B0480	FP245.2	TMD-76	D-365	
B	■20	400			BR505	TC39	TD-20-450	MT-4520	
C	▲50	50							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ULTRATONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	10000			SI 10000	D6-103	LT6S1	GP-10000	DC511	5HK-S1	
C4	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C5	47			SI 47	D6-470	LT6Q47	GP-47	UC-5447	5GA-Q47	
C6	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C7	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C8	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C9	7.5			N750-SI 7.5						N750
C10	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C11	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C12										
C13	5			N750-SI 5	TCN-5	C10V5U	TC7-5	NT-555	5TCUB-V5	N750
C14	7.5			N750-SI 7.5						N750
C15	100			N750-SI 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	N750
C16	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C17	1.5		836	NPO-SI 1.5	TCZ-1R5	C10V15C	TCO-1.5	ZT-5515	5TCCB-V15	NPO
C18	10000			SI 10000	D6-103	LT6S1	GP-10000	DC511	5HK-S1	
C19	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C20	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C21	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	

PARTS LIST AND DESCRIPTIONS (Continued)
RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	ULTRATONE PART No.	NOTES
R42	2200Ω			
R43	470K			
R44	220K			
R45	3900Ω			
R46	10K			Note 1
R47	47K 5%	1		
R48	47K 5%	1		

ITEM No.	RATING OHMS	RATING WATT	ULTRATONE PART No.	NOTES
R49	470K			Note 2
R50	470K			Note 2
R51	250Ω	5		Note 3
R52	4000Ω	14	635	
R53	10K	1		
R54	2700Ω	2		

Note 1. Some versions may use 15K in this applications.
Note 2. Some versions may use 270K in this application.
Note 3. Some versions may use 150Ω 5W in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	RATING SEC. 4	REPLACEMENT DATA ULTRATONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 1A	620VCT @ .130A	5VAC @ 3A	6.3VCT @ 1.74A	6.3VAC @ 3A	1107				22R32	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ULTRATONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6400Ω	3-4Ω Tap @ 1.6Ω	1212				A-3870		

ULTRATONE MODEL 120

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ULTRATONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C22	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C23	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C24	47			NPO-SI 47	TCZ-47	C10Q47C	TCO-47	ZT-5447	5TCC-Q47	NPO 10%
C25	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C26	47			NPO-SI 47	TCZ-47	C10Q47C	TCO-47	ZT-5447	5TCC-Q47	NPO 10%
C27	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C28	3-32									
C29	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C30	20			N750-SI 20	TCN-20	C10Q2U	TC7-20		5TCU-Q2	N750 ①
C31	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C32	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	②
C33	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C34	100									N150
C35	3300			BPD-0033	DD-332	BYA10D33	ED-0033	UC-5233	5GA-D33	
C36	3300			BPD-0033	DD-332	BYA10D33	ED-0033	UC-5233	5GA-D33	
C37	.05	400		BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C38	250			BPD-00025	DD-251	L10T25	ED-250	UC-5325	5GA-T25	
C39	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C40	68									N220
C41	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C42	33		908	N750-SI 33	TCN-33	C10Q33U	TC7-33		5TCU-Q33	N750
C43	.022	400		BPD-02	DD-203	CUB4S22		GEM-4122	4TM-S22	
C44	.1	600		P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C45	.06	600		P688N-06		CUB6S6		GEM-616	6TM-S6	③
C46	.06	600		P688N-06		CUB6S6		GEM-616	6TM-S6	③
C47	2.0	50	830							
C48	10000	1500		DAC-01		HVE16S1		GEM-1611	BL-S10	
C49	10000	1500		DAC-01		HVE16S1		GEM-1611	BL-S10	
C50	250		817	BPD-00025	DD-251	L10T25	ED-250	UC-5325	5GA-T25	①

① Not used in some versions
② Some versions may use 10000mmf in this application
③ Some versions may use .05mfd in this application

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ULTRATONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500K	½	422					Loudness, Tap ② 50K & 100K
R2A	2Meg	½	412A	B-76	A47-2Meg-Z	Q13-139	U55	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R3A	1Meg	½	421	B-69	A47-1Meg-S	Q11-137	U54	Treble
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ULTRATONE PART No.	NOTES
R4	1Meg			
R5	8200Ω			
R6	47K			
R7	10K			
R8	1000Ω	1		
R9	150Ω			
R10	270K			
R11	560Ω			
R12	2.2Meg			
R13	1000Ω			
R14	1000Ω			
R15	68Ω			
R16	1000Ω			
R17	68Ω			
R18	100K	1		
R19	15K	1		
R20	15K	1		
R21	100K			
R22	100K	1		

ITEM No.	RATING OHMS	RATING WATT	ULTRATONE PART No.	NOTES
R23	68K			
R24	2.2Meg			
R25	2.2Meg			
R26	470K			
R27	1Meg			
R28	22K			
R29	33K	1		
R30	2.2Meg			
R31	33K	1		
R32	270Ω			
R33	47K			
R34	470K			
R35	47K			
R36	120K			
R37	6800Ω			
R38	270K			
R39	22K			
R40	47K			
R41	100K			

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ULTRA TONE PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	12"	PM	3-4Ω	2635 ①	12A4A ①	① Parallel and Phase
SP2	10"	PM	3-4Ω	2639 ①	12A6A ①	
SP3	5"	PM	6-8Ω	2637 ①	5A1Z7R ①	
SP4	5"	PM	6-8Ω	2637 ①	5A1Z7R ①	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ULTRATONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant. Coil	1411B				
L2	FM RF Coil	1411A				
L3	FM Osc. Coil	1411				
L4	Cathode Choke	1303	19-1000	BC-561	4602	1 Microhenry; IRC Part #CLA
L5	RF Choke	1303	19-1000	BC-561	4602	1 Microhenry; IRC Part #CLA
L6	Loop Stick	1512E		BC-418		
L7	AM Osc. Coil	1401B		BC-393		
L8	1st FM IF	1409	16-3487	FM-254	1463	
L9	1st AM IF	1405	16-6758	BC-352	12-C1	
L10	2nd FM IF	1409	16-3487	FM-254	1463	
L11	2nd AM IF	1406A	16-6758	BC-353	12-C2	
L12	FM Limiter	1409	16-3487	FM-254	1463	
L13	Discriminator	1410	17-3494	FM-253	1464	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA ULTRATONE PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M1	60-54	81-TBX		56DS	* PT-2	* Not required unless original mechanism is damaged.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

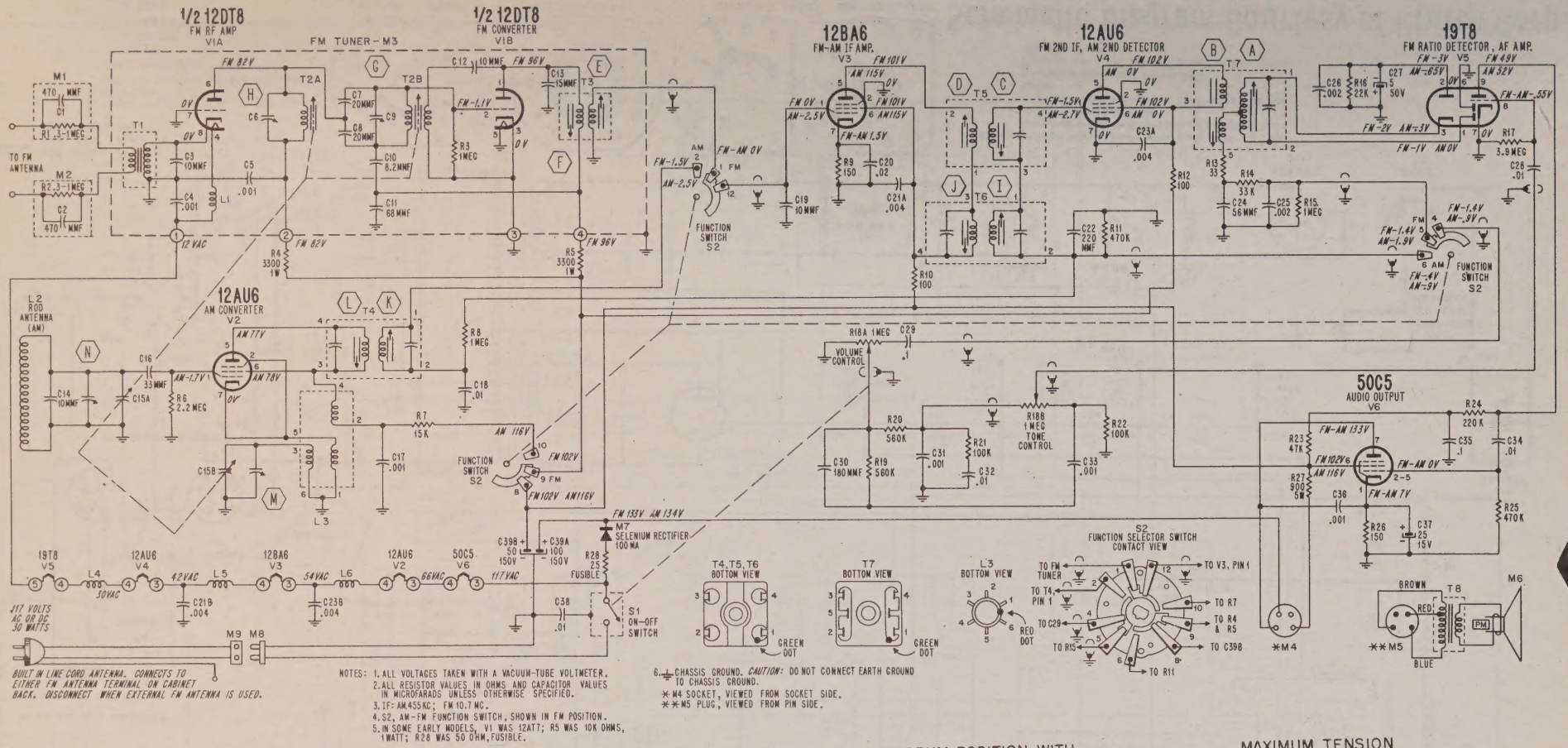
ITEM No.	REPLACEMENT DATA ULTRATONE PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2				

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA ULTRATONE PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M3	1N64		1N64	1N64	AM Detector (Pigtail)

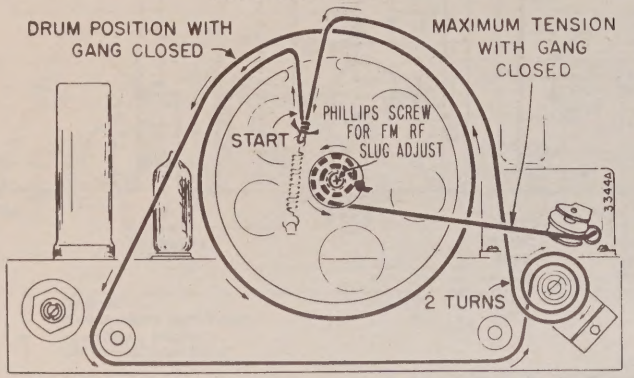
MISCELLANEOUS

ITEM No.	PART NAME	ULTRATONE PART No.	NOTES
M4	Indicator Lamp		#47
M5	Pilot Lamp		#12
M6	Pilot Lamp		#12
M7	Tuning Cap.	1004A	AM (2 Gang, Ant. 15-390MMF, Osc. 18-190MMF)
M8	Tuning Cap.	1021	FM, 4 Gang
M9	Switch	420A	Selector, Rotary Wafer Type
M10	Switch		Speaker Selector (Slide Type DPDT)(Some versions may use closed-circuit jack)

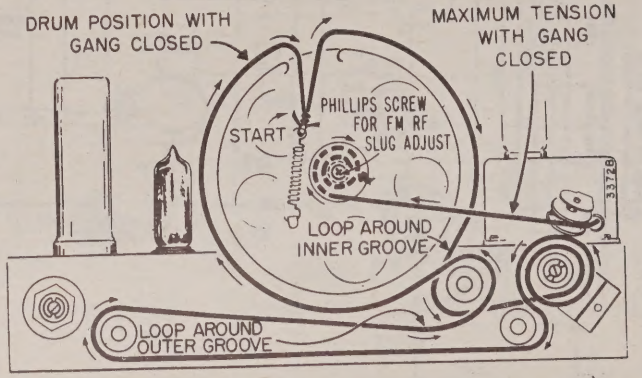


NOTES: 1. ALL VOLTAGES TAKEN WITH A VACUUM-TUBE VOLTMETER.
2. ALL RESISTOR VALUES IN OHMS AND CAPACITOR VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
3. IF: AM 455 KC; FM 10.7 MC.
4. S2, AM-FM FUNCTION SWITCH, SHOWN IN FM POSITION.
5. IN SOME EARLY MODELS, V1 WAS 12AT7; R5 WAS 10K OHMS, 1 WATT; R28 WAS 50 OHM, FUSIBLE.
6. ⏚ CHASSIS GROUND. *CAUTION:* DO NOT CONNECT EARTH GROUND TO CHASSIS GROUND.

* M4 SOCKET, VIEWED FROM SOCKET SIDE.
** M5 PLUG, VIEWED FROM PIN SIDE.



Dial Stringing (early production models).

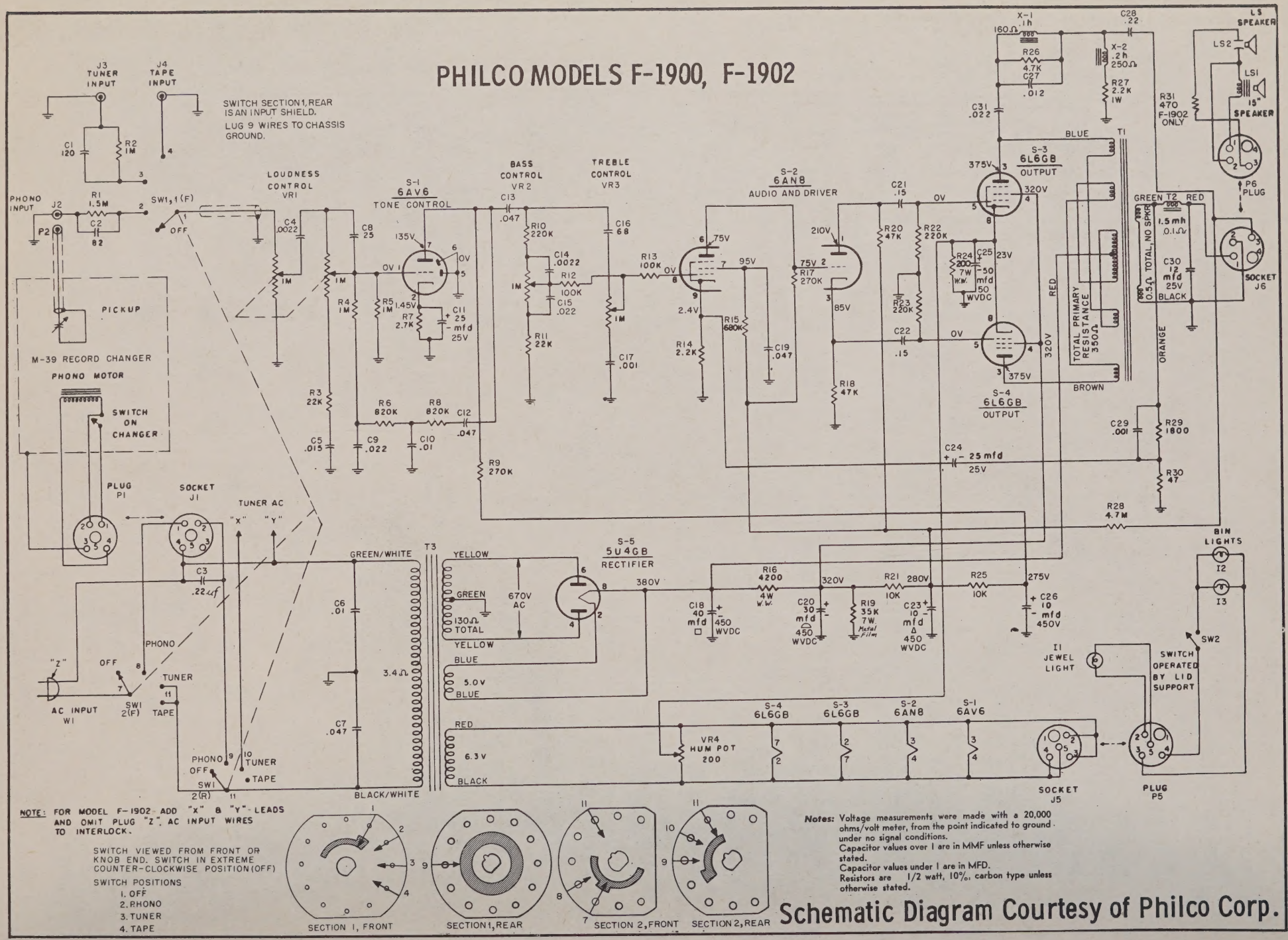


Dial Stringing (present production models).

ADMIRAL MODELS 303, 304 (Ch. 6B3)

Schematic Diagram Courtesy of Admiral Corp.

PHILCO MODELS F-1900, F-1902



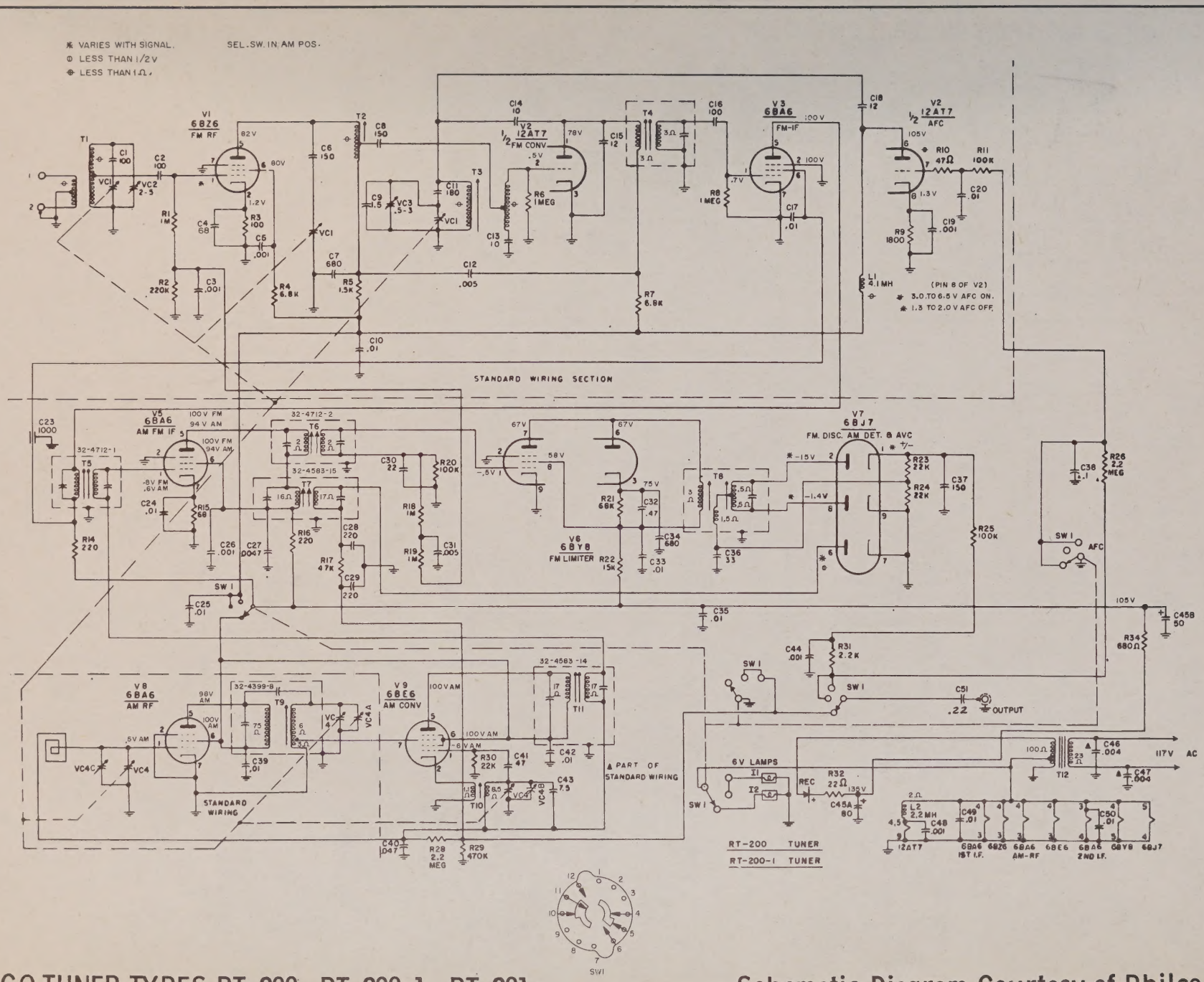
NOTE: FOR MODEL F-1902 ADD "X" & "Y" LEADS AND OMIT PLUG "Z", AC INPUT WIRES TO INTERLOCK.

SWITCH VIEWED FROM FRONT OR KNOB END. SWITCH IN EXTREME COUNTER-CLOCKWISE POSITION (OFF)

SWITCH POSITIONS
1. OFF
2. PHONO
3. TUNER
4. TAPE

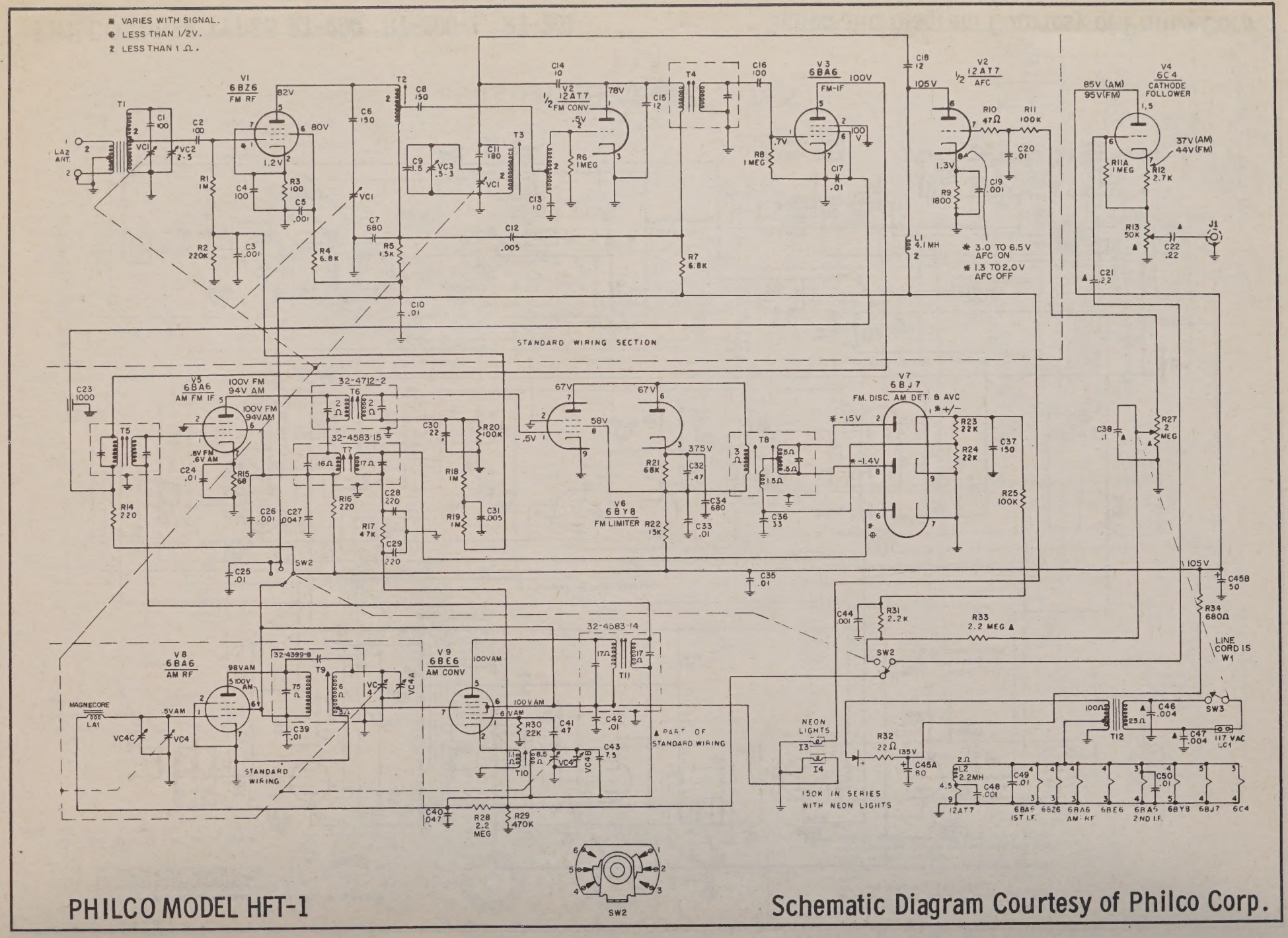
Notes: Voltage measurements were made with a 20,000 ohms/volt meter, from the point indicated to ground under no signal conditions.
Capacitor values over 1 are in MMF unless otherwise stated.
Capacitor values under 1 are in MFD.
Resistors are 1/2 watt, 10%, carbon type unless otherwise stated.

Schematic Diagram Courtesy of Philco Corp.



PHILCO TUNER TYPES RT-200, RT-200-1, RT-201

Schematic Diagram Courtesy of Philco Corp.


* VARIES WITH SIGNAL.
⊕ LESS THAN 1/2V.
‡ LESS THAN 1 Ω.
V1 6BZ6 FM RF
V2 12AT7 FM CONV
V3 6BA6 FM-IF
V2 12AT7 AFC
V4 6C4 CATHODE FOLLOWER
V5 6BA6 AM FM IF
V6 6BY8 FM LIMITER
V7 6BJ7 FM. DISC. AM DET. & AVC
V8 6BA6 AM RF
V9 6BE6 AM CONV
STANDARD WIRING SECTION
* 3.0 TO 6.5 V AFC ON
* 1.3 TO 2.0 V AFC OFF
▲ PART OF STANDARD WIRING
150K IN SERIES WITH NEON LIGHTS
LINE CORD IS W1
6AL5 6BZ6 6BA6 6BE6 6BA6 6BY8 6BJ7 6C4
12AT7 IST I.F. AM-RF 2ND I.F.
SW2

PHILCO MODEL HFT-1

Schematic Diagram Courtesy of Philco Corp.